Infantry

SCHOOL QUARTERLY

APRIL 1953

The Magazine For Infantrymen

THE INFANTRY SCHOOL
APRIL 1953

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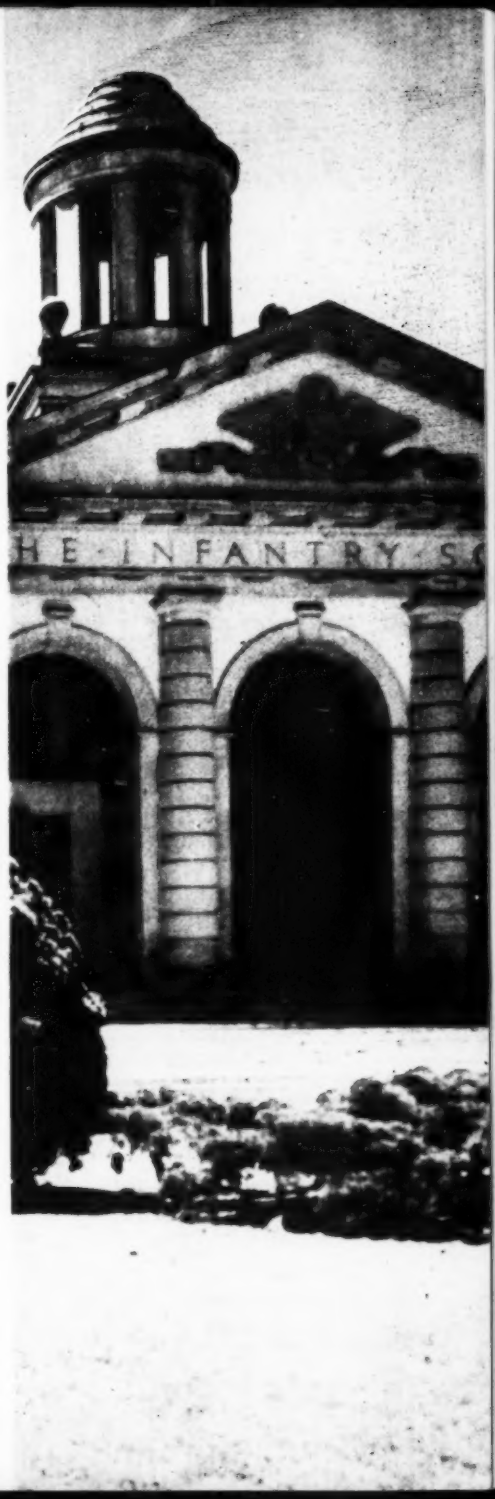

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Letters to the Editor

Counterfire

Sir:

I've been a counterfire platoon leader here in Korea for some time now. We frequently discuss training. As a result of our discussions two ideas have evolved: (1) Is it practical to devise a special GR-6A sound recording device (for training purposes) with two scopes and two sets of earphones? With the conventional instrument, time is lost mastering its control, because one teacher cannot actually observe whether or not the trainee is listening to the correct sound or observing the correct sound picture. If the modified type instrument were used he could instantly correct the pupil's operative faults. (2) Is it feasible to install a generator in the GR-6A sound recorder? The strain on the batteries now used is continual — and I believe a generator would be a great help.

Sincerely,

HUGH W. RUSS, JR.
2nd Lt, Infantry

We discussed Lt Russ' suggestions with the experts in the Communication Department here at The Infantry School. Here are the answers:

1. Let's consider Lt Russ' suggestion for devising a special GR-6A training device with two sets of earphones and two scopes. This was considered a splendid idea with numerous advantages and started considerable discussion in the department. However, several very real disadvantages came to light:

Such a modification would require a rebuilding of the BC-1323A recorder which would, of course, increase the overall bulk, weight and cost of the equipment. Now the Communication Department is thinking of ways to achieve this improvement without the disadvantages mentioned above.

Just for information this phase of training is taught here by the use of a 5-inch oscilloscope (not an item of issue for Infantry Counterfire Platoons) and amplifier. The oscilloscope is a test instrument which records photographically the wave form of a varying current or voltage. This method is, of course, less expensive than the one suggested and accurately indicates by pattern and sound exactly when a correct counter reading is attained. It might be well to mention that the training of counterfire personnel is done by the Communication Department here at TIS. The graduate is, of course, returned to his unit. Further discussion revealed that there is no field expedient substitute for training men in the use of the GR-6A. (There are three GR-6A in-

struments in every Infantry Counterfire Platoon).

However, we'd like to say again — Lt Russ' idea has started some serious thought.

2. Now on the matter of installing a generator in the GR-6A. Here is what the Communication Department tells us:

"A generator must be driven by some source of power (gas engine, battery, or any power developing device). The recorder BC-1323A has already installed in it a generator (referred to as a dynamotor). Power is furnished by the six-volt battery to the dynamotor which, in turn, provides voltage to the recorder. The only possible way known at this time whereby the recorder may be powered without the six-volt battery is by using a hand generator similar to the GN-58 used to power the AN/GRC-9 radio. This again would require one man constantly operating the hand generator as counterfire platoons operate twenty-four hours a day. It is the belief of the Communication Department that the thirty-six 6-volt batteries and the power unit PE-210 per squad to recharge these batteries is adequate for continuous operation."

For further information on the counterfire platoon — we suggest you read "The New Counterfire Platoon" by Major Gates on page 101 of this issue of the QUARTERLY.

As a final note, the Communication Department tells us that they always welcome ideas and suggestions from the field. — *Editor*

Letter From Korea

Dear Sir:

I'm sorry to delay forwarding my money for my 1953 subscription to THE QUARTERLY, but we only have money order service on pay day.

Some folks may have some difficulty understanding why THE QUARTERLY is of value to one in Korea — but it is. The value of tactical problems, the actual experiences of the authors and the many other features are grasped with ease by one over here because they serve to guide and aid us. What could appeal to a reader more than being in the actual vicinity of an action described in THE QUARTERLY?

I say thanks and be sure I get my copies.

Sincerely,

NORMAN G. HAMRE
Corporal
Korea

We want to thank Corporal Hamre for his comments and subscription renewal. We hope that THE QUARTERLY is of real value to each of our readers and solicit your ideas for making it an even better magazine. — *Editor*

Address all letters to: The Editor, Infantry School Quarterly, Training Publications Department, The Infantry School, Fort Benning, Georgia.

Editor's Page

To Our Readers:

A Lieutenant stationed in Germany sent us a subscription renewal the other day. Attached to it was a note which stated in part, ". . . every Infantryman should read the Quarterly." We were especially pleased to know how he felt about "The Infantryman's Magazine."

At the very bottom of the note was a small but neatly-penned postscript, "And send a fistful of subscription blanks. I've got a lot of friends." We did, and take this opportunity to acknowledge our thanks. After thinking over the "lot of friends" aspect of the letter, we all agreed that subscribing to the Quarterly has been too difficult. For this reason there's now a subscription blank in each issue. You can use it for renewal or pass it on to a friend.

We'd like you to take a look at page 53, "What's New?" This is a new feature in the magazine. Its sole purpose is to enable you to keep abreast of new items that are of value to you as an Infantryman.

Don't forget that we always need manuscripts -- and pay for them. Keep us in mind when you have an "article" idea.

The Editor

Where Training Pays Off----
Korea - where Infantrymen leave nothing to chance. This soldier clears out an enemy dugout with his tommy gun.

Amtracks

Captain Bickford E. Sawyer

✔ River crossings are rough. Here's an idea . . .

A WIDE, UNFORDABLE river is usually a major obstacle to the attacking Infantryman. It is an obstacle that he must overcome as quickly as possible to seize a bridgehead on the other side which will protect the crossing of the remaining forces.

There are two methods for crossing wide, unfordable rivers in military operations: the hasty crossing, and the deliberate crossing which requires detailed planning and preparation, and specialized personnel. This article deals only with the most difficult of these: the deliberate crossing.

An examination of our deliberate river crossing operations in the past will show that we have failed in most cases —

(1) To provide our Infantrymen with adequate armored support immediately after crossing.

(2) To follow-up a crossing with sufficient logistical support.

(3) To provide adequate evacuation facilities for our wounded.

(4) To provide our assault troops with the means to cross rapidly and with a fair degree of protection.

We have long recognized the need for armored support in river-crossing operations. During World War II, an attempt to solve the problem effectively was made in only one major operation — the crossing of the Rhine River in March 1945. In this operation the Duplex Drive or DD tank was employed. The DD tank is a conventional land tank, M-4 series, which has been converted to an amphibious tank by the addition of a canvas envelope; this allows the tank to float in water. The DD type tank has so many disadvantages that its practicability is extremely doubtful. The envelopes are easily punctured, and they present a great logistical problem. The tanks can enter and leave the river only if the river banks have a gradual slope, and they can fire only their caliber .50 AA machine gun while they are in the water. Of the 28 DD tanks used by two Infantry divisions in the Rhine River crossing, only 21 were able to complete the crossing. Even though these tanks were amphibious, seven hours elapsed after H hour before one of the divisions had its tanks ashore.

The only other methods of bringing our tanks into a bridgehead are by using the heavy tank raft or the heavy floating bridge. According to our present doctrine, the rafts are used after the first phase of the operation has been completed. The first phase is the capture of objectives that eliminate the enemy's capability of placing effective direct fire on the crossing front. The heavy bridge is not put in until the second phase has been completed.

The second phase is the capture of objectives that eliminate the enemy's capability of placing observed artillery fire on the selected crossing sites. The time consumed in completing these phases depends primarily upon how rapidly the Infantryman is able to advance. Unfortunately, his advance is slowed down because of the very fact that the bridge is not in operation — he lacks adequate tank support.

Crossing Times

How long does it take to get our tanks across an unfordable river? Here are a few examples taken from World War II river crossings in Europe:

(1) Moselle River — 80th Infantry Division — 12 September 1944 — first tank crossed 20 hours after H-hour.

(2) Roer River — 84th Infantry Division — 23 February 1945 — first tank crossed 32 hours after H-hour.

(3) Rhine River — 79th Infantry Division — 24 March 1945 — first tank crossed 5 hours after H-hour.

Is it possible for us to improve on these times?

Logistical Support

The problem of providing sufficient logistical support has not been as difficult to overcome as that of providing armored support. This is because of the ease in constructing and handling the Infantry support raft and the Infantry support bridge. A trained platoon can construct a three ponton raft in ten minutes or a five ponton raft in fifteen minutes. Nevertheless, we are limited by the same doctrine of employment schedules as for the heavy raft.

The most likely used method of logistical support is the hand-carry. In this method nonfighting troops, such as supply personnel, drivers, cooks, and sometimes supporting engineers, transport needed supplies across the river in boats or on the Infantry footbridge and then carry it by hand to the troops that are fighting. This method is slow and laborious. It wastes manpower, and is limited by the number of carriers that can be spared for the job. The further the fighting troops move from the river bank, the more tenuous becomes the supply line. In a stiff fight where large quantities of ammunition are used, this type of logistical support will almost surely break down. The overall effect is that we have slowed the advance of our Infantrymen at a time when speed is most needed.

The problem is providing adequate evacuation facilities for our wounded is probably less important than either of the foregoing two problems. However, any problem affecting the morale of our troops must be considered important enough to be examined. Until a bridge is constructed, the normal method of evacuation is by hand-carried litter down to the river, by boat across the river, and finally by ambulance or litter jeep to the collecting station. Naturally, the further the troops advance, the more difficult it is to evacuate the wounded. The normal number of litter bearers is seldom, if ever, enough to take care of the wounded in a tough fight, so they are usually supplemented with additional personnel from our non-fighters. This, in turn, cuts down on our logistical support.

The Moselle Crossing

The crossing of the Moselle by the

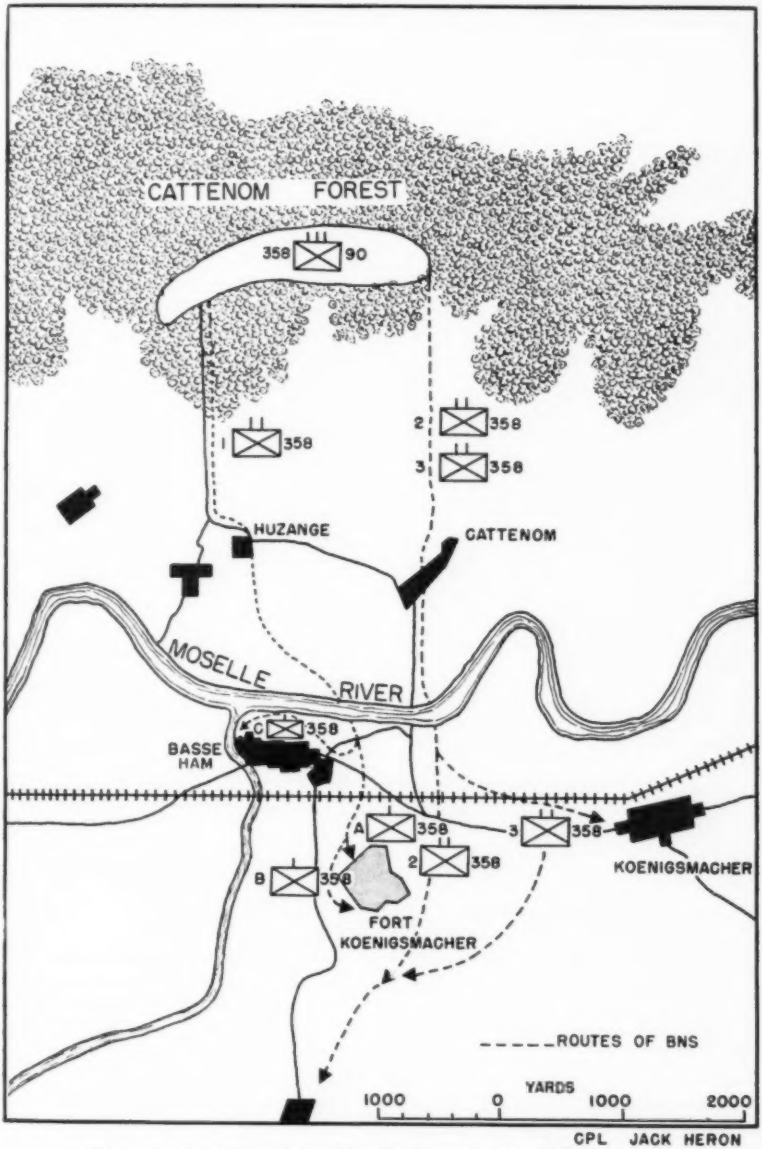

Figure 1. Crossing of the Moselle River by the 358th Inf Regt

358th Infantry of the 90th Division in November 1944, illustrates some of the problems already discussed and points out several good examples of the possibilities of the use of amphibious tanks and tractors in river crossings. We will emphasize only the river-crossing aspects of the action.

General George S. Patton stated, "The crossing of the 90th Division over the Moselle was an epic river crossing done under terrific difficulties."

The area chosen for the crossing of the 358th Infantry was not ideal (Figure 1). The regimental assembly area in the Cattenom Forest was about two miles from the river. The ground sloped gently from the assembly area to the river and, except for several small villages, it was completely devoid of cover and concealment. To make matters worse, the crossing area lay under the observation and guns of Fort Koenigsmacher which was located on a high hill directly across the river. The river itself was from 300 to 350 feet wide with moderately abrupt to gently sloping banks. Most of the ground near the river banks was marshy and, during rainy periods, often flooded.

As a result of continued rains for several days prior to D-day, the river had been rising steadily. By the end of the day on the 8th, the river width was up to 600 feet in some places. The current had also increased so that it was up to about 5 miles per hour.

The regimental objective was Fort Koenigsmacher (See Figure 1). At 0100 on the 9th of November, two assault battalions left their assembly areas and began moving to the boat pick-up points. The pick-up point for the 1st Battalion was at Huzange and for the 3d Battalion it was at Cattenom. These areas were the closest points to the river where there was cover for the engineers to drop off the boats. At Huzange the boats had to be carried 1500 yards to the river and at Cattenom they had to be carried 900 yards. This naturally caused considerable difficulty, but apparently there was no other solution to the problem.

The first waves moved as planned toward their objectives. Scattered outposts of the enemy were quickly cut down. Fortunately, the rising waters of the Moselle had flooded many of the enemy fox holes and covered mines on the river bank. However, the river was continuing to rise and was now becoming the main obstacle to the crossing. The current was so swift that engineers returning the empty boats to the near shore were swept down stream as much as 1000 yards. Engineer boat crews were doubled, but they accomplished little against the raging river. Attempts by the engineers to put in foot bridges also proved fruitless.

In spite of the tremendous difficulties encountered, the 1st and 3d Battalions crossed the Moselle before dawn and by 0600 the first units of the 2d Battalion were beginning to land.

Meanwhile, the 1st Battalion had moved Company C into Basse Ham and routed a German force there. Companies A and B were ordered to attack Fort Koenigsmacher. By daybreak these two companies had moved into the woods at the base of the hill on which the Fort was lo-

cated. At 0715 they began their attack.

The situation at the end of the second day was critical. Supplies of ammunition, medicine, and food were very low. The Moselle River had continued to rise during the day, and by noon it measured up to 2400 feet in width. Evacuation of casualties had been especially difficult. It was necessary, first, for the wounded to be hand-carried on litters over rough country to the ferrying site where they were loaded into boats and brought across to the other side of the river where ambulances of Company B, 315th Medical Battalion, waited to rush them to the collecting company.

To ease the supply problem, all available men that were not fighting, including some of the attached engineers, were organized into carrying parties. Throughout the entire night these parties brought supplies across the river to the Infantrymen in the bridgehead. Because of the swift current, however, it was decided not to attempt evacuation of the wounded that night.

On 11 November Company C was moved from Basse Ham to reinforce the units attacking Fort Koenigsmacher. The attack of the Fort continued throughout the entire day with the 1st Battalion making slow progress against the well-protected defenders.

However, the enemy was slowly beaten back, bunker by bunker, into one corner of the Fort.

The remnants of the enemy force attempted a mass exit through one of their outlying shelter points. As they came out they ran into Company G which had been left behind by the 2d Battalion as flank protection for the Regiment. The enemy force consisted of over 300 men, but they had no desire to continue the fight. They surrendered immediately to Company G and, with their surrender, ended the fight for Fort Koenigsmacher.

At 1800, 11 November the Moselle River had reached its highest point and was now beginning to subside. However, it was still too wide and the current too swift for a bridge to be constructed. Only through the courage and determination of the Infantrymen to stick it out, regardless of the most adverse conditions, was it possible to seize and hold that bridgehead.

Could this job have been done more rapidly and with greater ease? Yes — by the use of amphibious tanks and amphibious tractors.

Present Equipment

Our last problem, that of providing a better *primary* crossing means for our assault troops, is equally as important as any other river crossing problem now facing us. Our standard assault boat is the M2.* It is a scow-type plywood boat weighing 410 pounds and is normally propelled by hand-paddling. It will carry twelve fully equipped Infantrymen and a three-man engineer crew. It offers absolutely no protection to the men riding in it. It is too heavy, too difficult to manipulate in water and on land; it is easily capsized and, during long hauls by our troops, it will exhaust them before they reach the river

*New, improved assault boats are currently being tested by the Army. While the M2 assault boat is still being used, it is anticipated that it will be replaced.

Figure 2. LVT(4)

bank. Yet with all these drawbacks, we are using this boat as our primary means of transporting assault troops across rivers.

How can we best overcome these four basic problems? The necessary equipment is already available. The present type amphibious tanks * can do much toward giving our assault troops the tank support they need immediately after crossing a river. The present type amphibious tractors can do much toward solving the remaining three problems.

LVT (4)

The amphibious tractor now used by the Army is the Landing Vehicle Tracked, Mark 4, commonly referred to as the LVT (4) (Figure 2). It weighs approximately 14 tons (unloaded) and can carry 9,000 pounds of cargo or 30 fully equipped combat troops.** A hinged ramp at the rear of the cargo compartments helps the loading

*The Infantry School teaches that regimental tanks have a dual mission—to increase the fire power and shock effect of the Infantry, and to assist in providing antitank protection for the regiment. Methods described in this article do not satisfy the requirement for antitank protection, but they will increase the fire power and shock effect of the Infantry. It is *possible* that with this added assistance, objectives could be captured earlier than under present methods. This, in turn, would allow the regiment to bring its organic tanks across the river earlier.

**The LVT(4) troop load is considered an undesirable feature. Should one or more fully loaded LVT(4)s be lost during a crossing operation the drain on total troop strength could adversely affect the operation.

and unloading of the vehicle. It has a land speed of about 15 miles per hour and a water speed of up to 7 miles per hour. It is equipped with cup-shaped grousers, bolted in each track, which propel it in water. Compartmented pontoons located inside the tracks assist in providing flotation. It carries 163 gallons of fuel which gives it a cruising range of 150 miles on land and 100 miles in water.

The hull of the tractor is constructed of ⅛-inch steel, with ½-inch and ¼-inch armor on other parts of the vehicle for additional protection. The ½-inch armor is on the bow and the front of the cab, and the ¼-inch armor is on the sides and inside of the cargo compartment. More protection can be obtained by using a standard modification kit which increases the armor on the front of the driver's compartment and the sides by one-half inch. The addition of this portable armor, however, cuts the cargo carrying capacity of the tractor to 6,000 pounds.

The armament consists of two caliber .50 machine guns mounted on the rear of the engine compartment and three caliber .30 machine guns — two mounted on the sides of the cargo compartment and one mounted in the bow. All machine guns, with the exception of the one in the bow, are manned by the troops being transported.

The advantages of this tractor are as follows:

(1) It has a low silhouette in water which makes it a difficult target to hit.

(2) It has excellent flotation in water.

(3) It can easily negotiate swampy or muddy terrain — a maximum of 19 inches of mud and slime.

(4) It is not easily swamped or sunk in river operations. A mechanically operated bilge pump is provided which is capable of pumping up to 500 gallons of water per minute.

(5) It has a large volume of fire.

(6) Launching and landing points do not need to be as carefully selected or prepared as those for wheeled amphibious vehicles.

The disadvantages of the tractor are as follows:

(1) Its armor is too thin.

(2) Its angle of climb (35 degree maximum) is too low.

(3) It is too slow in water.

(4) It is too difficult to maneuver in water; changes in direction are made by slowing down one track while speeding up the other.

(5) It has a very high maintenance rate.

(6) It has an open top and, therefore, is vulnerable to air-burst artillery fire.

(7) During land operations its grousers create a twofold maintenance problem; they are easily bent or broken and they cause serious road damage.

Amphibious tractors are not new in river crossing operations. They were used during World War II at the Roer River by the 29th and 30th Infantry Divisions and at the Rhine River by the 79th Infantry Division. They were not used in mass, however, by any of these divisions, and only the 30th Division used them to transport an assault echelon. The little information that is available indicates that in all cases they played a small but successful part in the operations.

LVT(A)(5) (Figures 3 and 4.)

The amphibious tank which the Army uses at present is the Landing Vehicle Tracked, Armored, Mark 5 (Figure 3). It is referred to as the LVT(A)(5). This vehicle is very similar to the LVT(4). It weighs 20 tons with a complete combat load. It has the same speed and cruising range on land and in water as the LVT(4). Its climbing characteristics are also the same as the LVT(4). The hull is constructed of ¼-inch welded steel plate with ½-inch and 1-inch armor plate on other parts of the vehicle for additional protection. The front facings of the cab and the bow plate are of ½-inch armor, and the turret is of 1-inch armor. Plates of ¼-inch armor can also be welded to the outer side of the pontons to protect them from small arms fire.

The armament consists of one 75-mm howitzer which is located in the turret and three caliber .30 machine guns. One machine gun is located in the bow, and the other two are located in the turret. The amphibious tank is designed to carry a crew of six men. It can also carry twelve additional combat troops or one ton of cargo in its large fighting compartment. However, this is not a recommended use for the vehicle as it was designed as a fighting vehicle rather than a cargo carrier.

The amphibious tank has all of the advantages of the amphibious tractor with the additional advantages of increased armor protection and greater fire power. It also has about the same disadvantages as the amphibious tractor.

Organization

The amphibious tractor battalion

Figure 3. LVT(A)(5)

Figure 4. LVT(A)(5)

is a specialized armored unit which is under corps control. It is designed to transport troops and cargo. It is organized specifically for attachment to an assault Infantry division during an amphibious operation. Normally the division will attach one amphibious tractor battalion to each assault RCT making a landing. The battalion is composed of a headquarters, headquarters and service company, two amphibious tractor companies, and a medical detachment. There are 113 LVT (4)s in the battalion with 51 in each of the tractor companies. Radio is the primary means of communication in the battalion. Each of the troop-carrying tractors is equipped with an SCR 528 radio set.

The amphibious tank battalion is a specialized armored assault unit under corps control. It is designed to support Infantry units in amphibious landings. Like the tractor battalion, it is organized for attachment to an assault Infantry division. Because of its characteristics it is normally attached to the division artillery. This is done to insure that its supporting fires are in the artillery fire plan after the battalion assumes its artillery role. In addition to their SCR 528 radios, each tank also carries an AN/VRC-3 for netting with Infantry SCR 300 radios.

The amphibious tank battalion is composed of a headquarters, headquarters and service company, four amphibious tank companies, and a medical detachment. Each amphibious tank company has 16

LVT(A)(5) amphibious tanks and the battalion headquarters has four. The battalion is normally employed with two amphibious tank companies attached to or placed in support of each assault RCT. The RCT, in turn, normally places one company in support of, or attaches it to, each of its assault battalions.

Each company should be ready to deliver artillery fire when it is called for by the artillery forward observers with the Infantry. Each company of tanks has the fire power of a battalion of 75-mm howitzers. These units can furnish, therefore, a great amount of the artillery fire that the Infantry will almost surely need. Depending upon the situation, it is possible to employ them in a number of different ways. For example, some platoons or companies may be used as artillery while others are used in a tank role. However, the decision as to which role each unit will have rests with the commander to which the unit is attached. If companies are placed in support of the RCT, then the decision rests with the division commander.

Employment of Amphibious Tanks

Amphibious tanks may be employed with Infantry just as are the conventional land tanks. Infantry-tank tactics are used throughout the early phases of the river crossing. Plans for the employment of amphibious tanks, however, should provide for early relief by land tanks because of the vulnerability of the amphibious type and the maintenance they need when used for long periods of time. Under no circumstances should amphibious tanks be considered as a primary antitank weapon. The thin armor of the tank and the low muzzle velocity of its howitzer make it an extremely poor match for engagement with enemy tanks.

The Moselle Crossing: How It Might Have Happened

But to go back to the 358th Infantry's crossing of the Moselle: how could this river crossing have been made so as to provide our men with adequate armored support immediately after crossing, to provide them with sufficient logistical support, and adequate medical evacuation facilities? Finally, how could this crossing have been made so as to put the most men across the river in the least possible time with the greatest degree of protection? Here is a method that might have been used with two companies of amphibious tanks and an amphibious tractor battalion attached to the 358th Infantry — assuming current T/O&E for all units. This is how it *might have happened:*

As you know, the 358th Infantry was pulled out of the line before the Moselle crossing and sent back to a rear area for training. In this area our regiment was joined by its attached engineers. This is the area where the regiment saw, for the first time, its attached amphibious tanks and tractors. Fortunately, our training area was not only near a river but also near a railroad. This was a necessity, as our amphibious tanks and tractors should not travel for long distances on land. Our training phase with the amphibious vehicles included familiarization with both the amphibious tank and the amphibious tractor. The final portion of this phase included a full scale rehearsal.

Planning

During our training, we also made our plans for the crossing. Based on advice from the attached unit commanders on the employment of their units an over-all plan of attack was drawn up. In addition to a normal attack order for a river crossing, our plan included the following:

(1) The number of tractors to be attached to each unit.

(2) The number of tractors to be used to carry litters.

(3) Tractors to be used for supply only.

(4) Special plans for the use of tractor and tank radios.

(5) Time the amphibious tanks and tractors will arrive in the final assembly area.

(6) Artillery plan to cover the noise of the tractors and tanks.

(7) Routes of approach to the river, special marking devices to be used, and guides.

(8) Formation for crossing the tractors to include the exact crossing sites (the exit site must be downstream based upon the speed of the current).

(9) Position of the amphibious tanks in the crossing formation.

(10) Special engineer projects, if necessary, to provide suitable approaches to and exists from the river.

(11) Plans for the employment of engineers to remove mines from either bank of the river.

(12) Provisions for safety cables across the river. (These cables are strung upstream from the raft and bridge sites to keep amphibious vehicles that are out of control from crashing into our rafts and bridges. If at all possible, amphibious vehicle crossing sites will be downstream from our raft and bridge sites after the first phase of the crossing has been completed. Because of the slow speed of amphibious tanks and tractors, they will always float downstream in a swift current.)

(13) Special instructions concerning the use of tractors and amphibious tanks on the far bank of the river.

(14) Subsequent plans for tractors after being released by the companies.

(15) Crossing sites to be used *after* the initial crossing. Keep in mind that the preceding points were in addition to those instructions normally found in a regimental or battalion order for the attack of a river line.*

Out of the 113 tractors in the tractor battalion our regiment was allotted 96 — 48 from each tractor company. The remaining tractors were needed by the tractor battalion for control, administrative, and resupply purposes. Based on the figure of 96 tractors, our regiment attached the tractors as follows:

(1) Each assault battalion — 38 (with two assault battalions the total was 76).

(2) Regimental Headquarters Company — 10.

(3) Supply — 10.

Each assault battalion alloted two tractors for ammunition, three for litters, one for a mobile aid station, and one for a mobile command post. The remaining tractors were alloted to the companies in the battalion based on the number of

*For more complete information see App. XII, FM 7-20 and Par. 210, FM 7-40.

troops crossing, including attachments. Each litter tractor was provided with racks and enough litters to carry nine casualties. This allowed us to evacuate casualties to the regimental collecting station at a much faster rate than had ever been possible before.

To insure that each unit would have communications during the crossing, our plans included the use of the tractor's SCR 528 radio in addition to organic radios. An AN/GRC-9 radio was installed in the tractor used by each battalion commander as a mobile CP, and a channel on the tractor's SCR 528 radio was also set aside for communication with the regimental CP. This gave us two ways to keep constantly in contact with regiment, both during and after the crossing — an impossibility when using boats.

In order to get the maximum number of troops across the river in the shortest possible time, it was decided to cross with all of the assault troops of two battalions in one wave. Attached amphibious tanks would cross in the second wave. The third wave would be battalion headquarters, and medical and supply personnel. This would make it impossible for the enemy to concentrate the bulk of his fire on one crossing point and perhaps stop an entire battalion from crossing. Because we were crossing during darkness, the amphibious tanks were to follow the tractors at H plus 5 minutes. Each assault battalion was to have one amphibious tank company attached.

One Company's Problem

We have briefly covered the planning that took place in the assault battalions; now let's see what one of the companies had to do. Even before the battalion order was issued, the company commander was planning how he was going to load his men in the tractors. He had been notified by the battalion commander that he would have eight tractors attached to his company. With this figure in mind, his loading plan was based on one consideration — maintaining tactical unity. He had attached to his company one squad of engineers, three forward observer parties, one section of machine guns, and one section of 75-mm rifles.

Here is his loading plan:

Number in company crossing — 181.

Number attached crossing — 47.

Total number crossing — 228.

Tractor No. 1 (Total crossing — 29)

Company headquarters (Co Comdr, 1st Sgt, Comm Ch, 1 Rad Tp Opr, 2 Msgrs), 4 Plat Msgrs, 1 FA Fwd Obsr, 1 FA Rad Opr, 1 Hv Mort Fwd Obsr, 1 Hv Mort Rad Opr, 1 Sqd Engrs (-1Drv), 60-mm Mort Sec Hq, 57-mm Rifle Sec Hq. Note: 21 men, including 6 fillers, from Co Hq will not cross.

Tractor No. 2 (Total crossing — 29)

1st Plat (minus 2 R Sqds, 1 Plat Sgt, 1 Msgr), 1 Aid man, Wpns Plat Hq (minus Lt Trk Drvs, 1 Msgr).

Tractor No. 3 (Total crossing — 29)

2 Rifle Sqds, 1st Plat; Plat Sgt, 1st Plat; 1 57-mm R sqd; 1 60-mm Mort Sqd.

Tractor No. 4 (Total crossing — 26)

2d Plat (minus 2 R Sqds, 1 Plat Sgt, 1 Msgr), 1 Aid Man.

Tractor No. 5 (Total crossing — 29)

2 R Sqds, 2d Plat; Plat Sgt, 2d

Plat; 1 57-mm R sqd; 1 60-mm Mort Sqd.

Tractor No. 6 (Total crossing — 26)

3d Plat (minus 2 R Sqds, 1 Plat Sgt, 1 Msgr), 1 Aid Man.

Tractor No. 7 (Total crossing — 30)

2 R Sqds, 3d Plat; Plat Sgt, 3d Plat; 1 57-mm R Sqd; 1 60-mm Mort Sqd; 1 Aid Man.

Tractor No. 8 (Total crossing — 30)

1 Sec, MG Plat, Hv Wpns Co (minus 2 Lt Trk Drvs); 1 Plat Sgt, MG Plat; 1 Sec, 75-mm R Plat, Hv Wpns Co (minus 1 Lt Trk Drv); 1 Plat Sgt, 75-mm R Plat; 1 R Co Exec O; 1 Rad-Tp Opr; 1 81-mm Mort Fwd Obsr; 1 81-mm Mort Rad-Tp Opr. Tractors will cross in line formation from 1 to 8, number 1 on the left.

There were other acceptable plans which would have worked just as well as this one, but any plan we used had to be based primarily on the consideration of tactical unity. The load in each tractor had to be capable of fighting alone, as the possibility always existed that all of the tractors would not land in the same vicinity.

In the loading plan the company commander also had to consider who would be commanding the troops in each tractor, who would be manning the four machine guns on each tractor and, finally, the exact position of each man in the tractor. (The fifth machine gun in the bow is operated by the tractor crew.) All men were to be loaded in the tractors in inverse order, so that squad leaders would be next to the ramp at the rear of the tractor and in a position to lead their men out. The men were to debark from the tractor in three files with one rifle squad on each side of the cargo compartment and the remaining troops in the center. The troops were loaded in this way to ensure that each squad maintained tactical unity after it left the tractor.

Reconnaissance

We could not complete our planning or issue our final orders until we had made a reconnaissance of the area in which the crossing was to take place. On our reconnaissance, we took representatives from our attached and supporting units. In picking our crossing sites we kept two important points foremost in our minds. First, we had to be sure that the banks where our amphibious vehicles were going into and out of the river were not too steep for them to climb. Second, we had to make every effort to discover the location of any antitank mines in the area and arrange for their removal.

Our routes of approach to the river presented a tremendous problem. We had to move close to the river great quantities of the normal supplies it takes to sustain a unit in combat. The necessity for bringing up boats, rafts, and bridges put a large amount of traffic on our roads in addition to almost two battalions of amphibious vehicles. We felt certain that the grousers attached to the tracks of our amphibious tanks and tractors would dig up our roads to such an extent that other vehicles could not use them until repaired by engineer units. Fortunately, however, the road net was ample enough to let us set aside one road for our amphibious tanks and tractors, leaving the other roads for our remaining vehicles.

Movement

The movement to the assembly

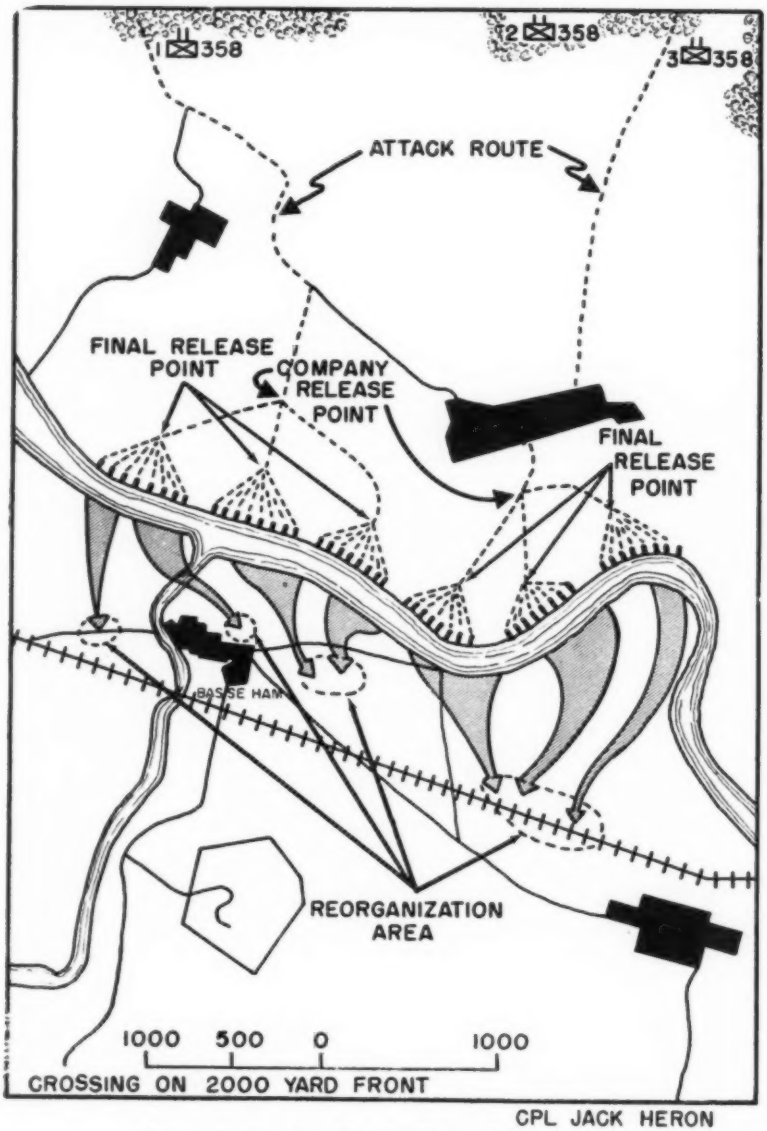

Figure 5. Crossing Moselle River using Amtracks

area began several days prior to D-day (9 November) so that we could move in the great amount of supplies that would be necessary and so that our troops would have more time to reconnoiter and to finish their final planning. On the night of 8 November, the amphibious tractors and tanks moved up. Guides picked them up at a designated point outside of the assembly area and moved them to their loading points. The noise that the amphibious vehicles made while moving up had been carefully covered by artillery fire which was falling on enemy positions on the far side of the river.

At H minus 1 hour troops from the two assault battalions moved to their assigned tractors. H-hour had been designated as one hour before dawn. Each tractor was marked with a number and each soldier knew exactly in which numbered tractor he belonged. As soon as the tractors were loaded, they moved on order to the attack route (figure 5). Guides, white engineer tape, and luminous markers insured that each tractor moved along the correct route to its proper place. Each of the assault battalions had its own route to follow. The move was planned so that the minimum amount of time was spent moving along the routes. At H minus 15 minutes the tractors had reached the company release point. These routes were also carefully marked and guides were used to make certain that all tractors followed the correct route. At the company release point, personnel from the battalion headquarters regulated the traffic ensuring that each company moved to its final release point. There the tractors moved into a line formation. The tractors arrived at the final release point at 5 minutes before H-hour. At H-hour both assault battalions moved down the river bank to cross the river.

The Crossing

As soon as the crossing began, radio silence was lifted. Normally, control in the early phases is extremely difficult, but with the organic radios carried by each unit, plus those carried by each tractor, the problem was considerably lessened. As the tractors crossed the river, there was a great amount of drift downstream. However, in our plan, allowances were made for the speed of the river current, and we had determined approximately where the tractors would finally land.

Upon landing, each tractor moved to its predesignated reorganization area, or, in cases where enemy resistance was strong, the men unloaded and proceeded to clear the river bank. In our crossing, enemy resistance was very light, so with a few exceptions, all tractors moved directly to their reorganization area. At these areas the troops debarked from their tractors, reorganized rapidly, and moved out for their initial objectives.

Each returning tractor had an additional mission assigned to it. Some were sent to the reserve battalion area to be used to transport this battalion across the river when needed. Others were assigned the mission of resupplying the fighting Infantrymen on the far bank of the river or assisting the engineers in their bridging operations.

The amphibious tanks assisted the battalions to which they were

attached in obtaining their initial objectives. Those attached to the 1st Battalion assisted in the capture of the town of Basse Ham. After this town fell, they assumed the artillery role and helped to protect the right flank of the regiment. The amphibious tanks attached to the 3d Battalion stayed with that battalion until relieved by land tanks. They materially assisted the battalion in capturing its objectives and throwing back the many enemy counterattacks to which it was subjected.

The mobile CP, mobile aid station, litter tractors and supply tractors for each battalion, which were in the third wave, moved into the reorganization areas shortly after the amphibious tanks arrived. Each of these vehicles was a tremendous help in the subsequent operations. Our medical and supply setup was especially noteworthy. Casualties were carried short distances to the mobile aid station where they were given immediate attention. They were then loaded into the litter tractors and evacuated rapidly across the river to the regimental collecting station. This method of rapid evacuation saved countless lives that otherwise would have been lost. The great amount of ammunition and food carried by the supply tractors assured us of an adequate initial supply of these commodities. Supply tractors also carried much of the load the troops would have been required to carry had they not been with us. Resupply was taken care of by the tractors that had carried the first wave across the river. We were able to order large amounts of supplies by radio and have it arrive on our side of the river in a matter of a few hours. This was a great saving in personnel, effort, and time.

When we began to move outside of the range of our supporting artillery (105-mm howitzer battalions), amphibious tractors again came to our rescue. Each tractor carried one howitzer with its section crew across the river and unloaded it in a new firing position on our side. Other tractors carried enough ammunition to ensure continuous fire support. If this had not been possible we still would have had the equivalent of two battalions of 75-mm artillery with our two attached tank companies.

The over-all effect of having the amphibious tanks and tractors in this river crossing operation can never be measured. With them we were able to advance faster and farther than we would otherwise have been able to do. We were not hamstrung by a lack of mobility. Troops were not exhausted or wasted by being required to carry supplies and wounded personnel over long distances; their morale was greatly improved. We had finally given the Infantryman a river-crossing vehicle that would do much in assuring his success in future river crossings.

I repeat: *This is what could have been.*

This article was designed to point out possible uses for amphibious tractors and amphibious tanks in river crossing operations. There has been no attempt to picture these vehicles as a cure-all for the problems that face us. There will be times when these vehicles cannot possibly be used and our present

methods will have to be utilized. Under normal conditions, however, it is felt that no other type of river crossing equipment offers so much toward establishing the final bridgehead line by the assault Infantryman as the amphibious tractor and the amphibious tank.

Publication of this article is not necessarily to be interpreted as reflecting the views of The Infantry School or The Infantry School Quarterly.

"Forsooth, yon angry guns did belch with fire and smoke"

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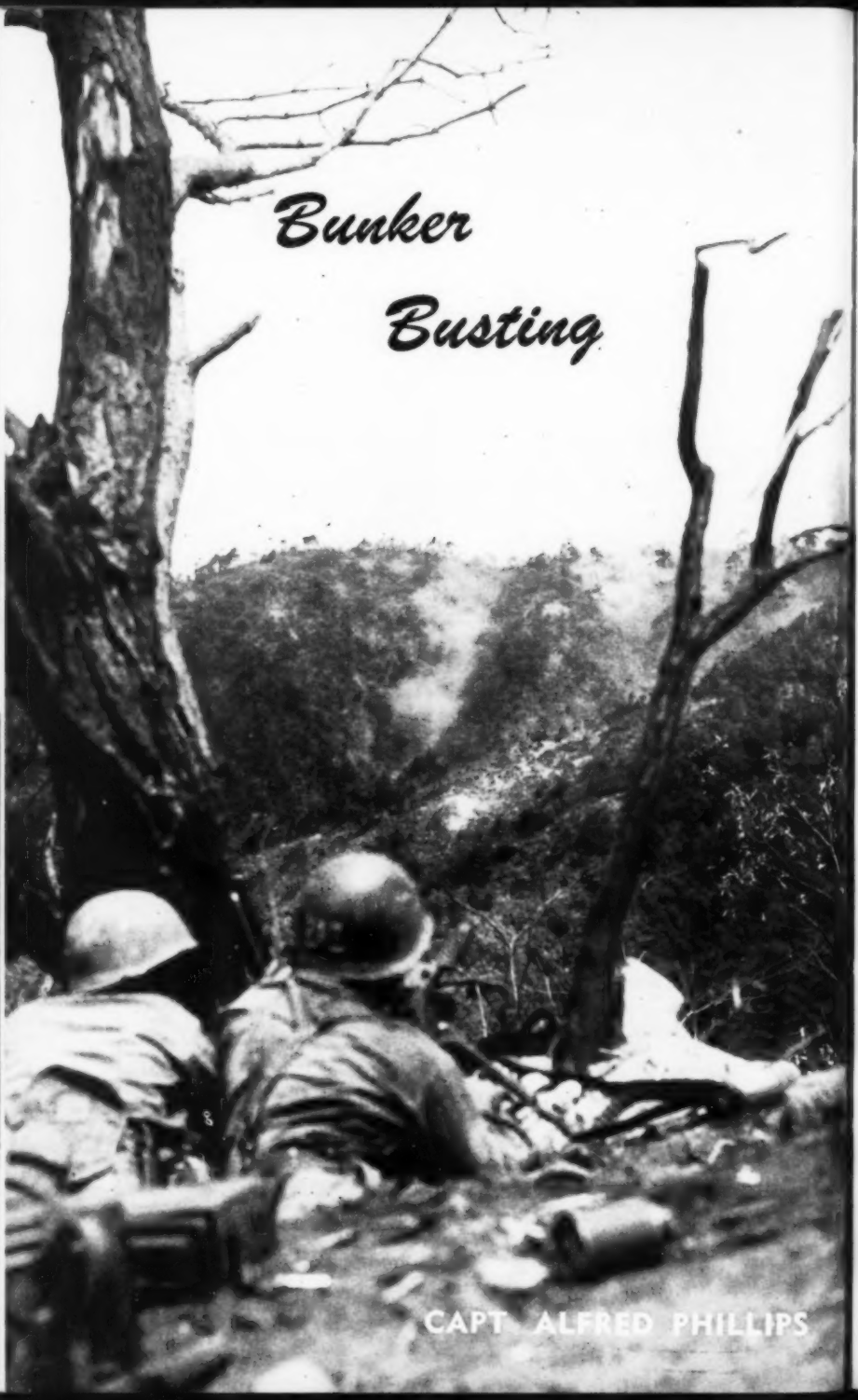
Bunker Busting



CAPT ALFRED PHILLIPS

"What was it really like when you took this bunker?"

"BUGLE" JONES LOOKED UP from the letter he was reading and saw Newboy flinch as the round landed. Newboy had joined the outfit earlier in the day, and this was the first time he had ever heard incoming mail. The kid was scared — and showed it — hunched over like he was, with a strained look on his face. I remembered thinking that I had been pretty much like that only eight months ago, and I could see that "Bugle" — who was always needling someone — was ready to start on Newboy.

"Whatcha worried about, Newboy? Them rounds is landin' over 800 yards away, over in G Company's area."

Sergeant Hawks glared at "Bugle" and slowly shook his head. But "Bugle" ignored the implied order and continued.

"You shoulda been with us three days ago when we took this here bunker number 39. Then you woulda heard artillery that really was artillery. Why, they threw so much stuff at us, that - - -."

"That's enough." Sergeant Hawks stared at "Bugle" who mumbled something about "wanting to give the kid a little 'battle indoctrination.'" Hawks then turned to the replacement and beckoned him over to the entrance to the bunker.

"We all get scared, Newboy, no matter how many times we hear that stuff. Don't let it throw you."

Newboy smiled gratefully at the old sergeant. He then turned and looked out the entrance.

"What was it really like, Sergeant? When you took this bunker, I mean."

Sergeant Hawks took a cigarette from the crumpled pack in his hand and lit it. He didn't want to scare the replacement, yet Newboy did need orienting.

"There isn't a job the Infantry has to pull that can be called easy, Newboy," began the sergeant. "But we can best accomplish our mission with the minimum of casualties if we have team work. And team work is never more important than when we have to knock out a bunker.

"We use tactics and techniques that were developed in World War II when we hit places like the concrete and steel pillboxes in the Siegfried Line, or the log and dirt bunkers on the atolls of the Pacific. With all this experience behind us our job is a lot easier now than it was then.

"To start off, we organize the platoon a little differently. We take a nine-man rifle squad, add the four-man rocket launcher team from platoon headquarters, and organize them into an *Assault Team.*

We break this Assault Team down into two groups. The *Assault Group* has the mission of neutralizing the bunker, while the *Fire Support Group* fires into the embrasure of the bunker while the Assault Group is maneuvering up.

"The leader of the Assault Team is the rifle squad leader. In the actual attack he will go with the Assault Group.

"Now, in the Assault Group we have six men in addition to the leader. First, there are *two bangalore torpedo men.* They breach antipersonnel obstacles, like barbed wire entanglements or antipersonnel mine fields, using the bangalore.

"Next, we have *two flame thrower men.* Each has a flame thrower to squirt the bunker embrasure. Normally they fire two long bursts. First one from the side to drive the occupants away, then one directly into the embrasure from the front, using short bursts while they maneuver.

"Finally, we have two *demolitionists* in the Assault Group. They carry either pole charges, satchel charges or 'Bee Hives' to blow the embrasure of the bunker.

"Do you follow me so far?"

Newboy nodded his head slowly, then asked, "Yes, but why two of everything? I should think that one flame thrower, for example, would be enough."

"We have to duplicate," replied Sergeant Hawks, "because if some piece of equipment should fail to function at a crucial moment, or if a key man becomes a casualty, a replacement is right there to do the job."

"That makes sense," said Newboy. "Now, what about the Fire Support Group?"

"Well, in the *Fire Support Group* we have a *two-man rocket launcher team, a two-man AR team* and a *rifle grenadier.* They are led by the assistant squad leader. These weapons are maneuvered where they can fire directly into the embrasure of the bunker."

"Bugle" Jones had listened to all that Sergeant Hawks said. As usual, he had a comment to make.

"What about the rest of the guys in the platoon? I nearly broke my back carrying a bazooka, and I never saw any of the other guys around 'til it was all over. Then they came up and surrounded the bunker. Big deal! We'd already knocked it out."

Sergeant Hawks directed the answer to "Bugle's" question toward Newboy.

"The remaining two rifle squads, the weapons squad and any attached weapons make up *Platoon Minus.* They establish themselves in the best available firing position and cover the bunker and the ground around it — where the Reds put men in fox holes to cover the dead spaces in the fire from their automatic weapons."

Throughout the explanation of the organization of the platoon for the attack on a bunker, Newboy had been staring out the door in the direction from which the attack came. He then turned to Sergeant Hawks and said, "Tell me about it. How did it go, the day you fellows took this bunker?"

Sergeant Hawks looked at me for a moment. Then he started telling Newboy about that day, the day we took Bunker 39 (figure 1).

I stared out the door. As Hawks talked I could see, in my mind's eye, everything — just as it happened.

* * *

It all began early the morning before we attacked. The entire battalion was in reserve, and we had just finished breakfast. We had fresh eggs that day, if I remember correctly, and they sure tasted good, after all that dehydrated stuff we had been having.

Anyway, Fats Murphy came running up just as I was trying to decide whether a second cup of coffee was worth the effort. He went straight to Hawks and said that the lieutenant wanted him and all the squad leaders up at an OP. Fats was going to take us there. I forgot about the second cup of coffee.

Hawks gave us the high sign, and we followed the runner to the OP. We crawled up, and then the lieutenant oriented us. He pointed out the bunker we had to take. It was easy to spot because the Reds had forgotten to change the camouflage around the embrasure. The bush was dead and the leaves were all dried up.

He then pointed out some bunkers around ours. There was some barbed wire there too. Then we all crawled down into some defilade, and he issued the order.

We gathered around a sketch he had made. He gave us the word on the enemy, on who was on our flanks and what the entire company was going to do. Then he gave us our role.

We had one bunker assigned to the platoon, like always. I guess they figure that one is all that a

platoon can take care of at a time. And the Old Man had attached Ben Gold's 57 squad to the platoon. They're a good crew to have around.

The platoon was to cross the line of departure in a platoon column, with the Platoon Minus leading, the Fire Support Group next and the Assault Group bringing up the rear.

We were to move up the draw, and then he pointed to the nose where the Platoon Minus would set up. He told Charley to put the LMG's on the flanks.

Then he said he wanted the Fire Support Group on the left flank of the Platoon Minus. He wanted the Assault Group to hit the bunker from the right. He looked at me when he said that. Yeah, my squad was in the Assault Team. He must have read my mind because I remember his exact words, "That's right, Sergeant Bowden. You've got a real job."

He went through the entire order and told us to be back with the platoon in an hour and a half in order to rehearse the attack. I went up to the OP and checked the terrain again with the sketch I had drawn. Then I went back and told the guys in my squad and those in the rocket launcher team how we would operate.

Then the platoon rehearsed. The lieutenant had found a draw something like the one we would hit the next day. We ran that attack six times, and every time it went a little smoother. Boy, we slept that night; we were that tired! We slept pretty good, knowing we were as set as we could ever be.

We hit the Attack Position at around H-10. All hell was breaking loose. They were plastering the Reds with artillery and mortars. They even had planes dive bombing the place.

I gave my men a last minute check. Then at H-3 they smoked the objective. Just about that time was when we left the Attack Position.

By the time I crossed the LD I could see the platoon in column in front of me. The first squad was leading in a diamond. The lieutenant was behind them, followed by the weapons squad. Next came Skinny's second squad, the First Support Group, then me and the Assault Group. I passed Gold's 57 already in position, ready to fire when the smoke lifted.

Everything was OK for the first hundred yards or so. Then the Reds woke up and started dropping mortar rounds on us. We ran through real quick. Only the lieutenant was hit, but not too bad. That's when Hawks took over.

The smoke was lifted. And the direct fire supporting weapons took over. Our tanks, 57's, 75's, machine guns — they even had some 155 SP's — began to clobber the bunkers and kept them buttoned up.

Platoon Minus set up a base of fire just like we planned. Then some Reds opened up with a machine gun from a hole just to the left of the bunker. Gold spotted them after they had fired a few bursts, and knocked them out with only two rounds. Like I said, they're a handy crew to have around.

Covered by the fire from Platoon

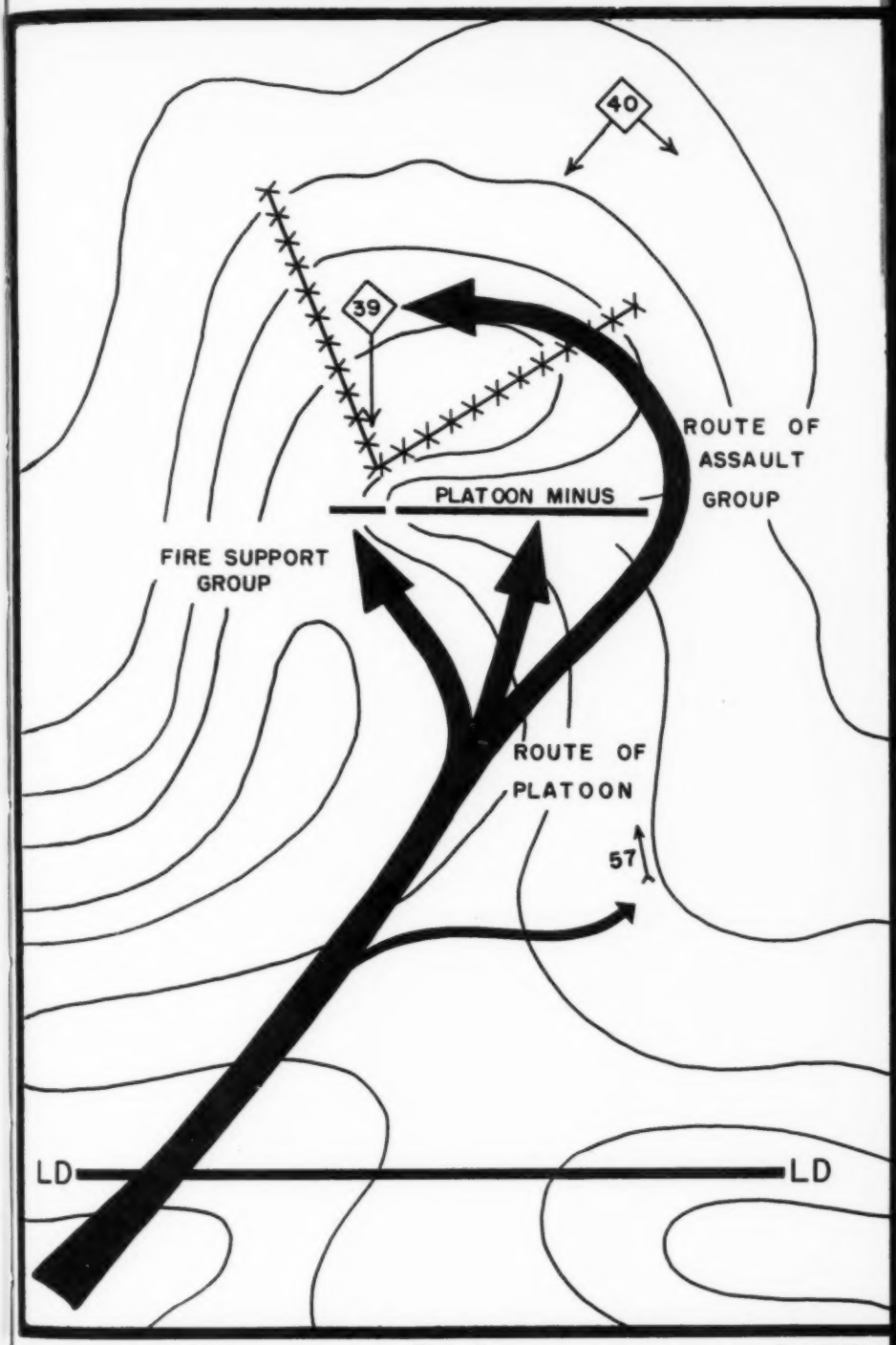


Figure 1. —*Roy Medders*

Minus, the Fire Support Group set up in the bottom of the draw and began firing into the embrasure. Then Hawks gave me the "Go ahead."

I moved the Assault Group out and hit the barbed wire. Brown immediately moved out with the bangalore and blew a gap in the wire. Now we had arranged that a yellow streamer would be the signal to lift supporting fire but there's always someone who doesn't get the word. Some jerk kept firing a heavy into the bunker embrasure, and we couldn't move in. But Hawks was on the ball and fired another streamer he had handy for such an emergency. The heavy gunner saw the second streamer.

As soon as the supporting fire lifted, "Bugle" Jones pounded a WP round into the embrasure, hitting it with the first shot. I know it's the first time in his life he ever did it, but he swears he can do it every time. Anyway, that screened the rest of us as we closed in on the bunker.

Paul moved in with the flame thrower. He gave them two good bursts, one from the side, and one directly from the front. Brown moved with him to give him close-in protection with his rifle. Then Joey came up with the pole charge. Just as he was about to place it in the embrasure of the bunker, he was shot in the chest. Then Allenby moved in with the other pole charge and blew the embrasure.

We reorganized quickly and established all around security. We used the clock system, with 12 o'clock running right through the bunker in the direction of the attack. Platoon Minus covered from 8 to 4, while I covered from 4 to 8 with the Assault Team. Paul and Allenby guarded the embrasures with the flame thrower and Joey's unexploded pole charge until the bunker was cleared.

The Reds counterattacked as they always do, but we beat them off. Why — they couldn't have pushed us off no matter how many waves they sent. We were too tired to move! And then the second platoon passed through us to take the next bunker.

* * *

Newboy kept staring out the bunker, trying to visualize the attack as it was described to him. When Sergeant Hawks finished, and paused to light another cigarette, the replacement said, "This bunker busting is really rugged."

Sergeant Hawks replied, "Yes — it is — but you'll learn that a lot of it depends on teamwork. And, Newboy, you're going to be with Sgt. Bowden's squad."

Hawks then turned toward me and said: "Bowden, there are plenty of bunkers ahead of us — so keep that squad of yours ready."

The most precious commodity with which the Army deals is the individual soldier who is the heart and soul of our combat forces.

— General J. Lawton Collins

New Instructional Material

Listed below is instructional material recently published at The Infantry School. This material is available at The Infantry School BOOK DEPARTMENT and is in addition to that listed in the Book Department Catalog. All material is classified RESTRICTED.

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6501	Personnel Functions, Infantry Battalion	.25
6506	Casualty Reporting	.15
6508	The Morning Report	.15
6553	Boards and Investigations	.45
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71-1	Movement by Air (Special Text)	.35
23-82-1	105-mm Rifle (Special Text)	.20
Chart	Characteristics of Infantry Weapons	.10
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Engineer equipment mechanic

MOS 1844
Field artillery ch[illegible]

MOS 3648
Field radio repairman

MOS 4641
Field wireman

MOS 4624
Finance clerk

MOS 4383
Fire fighter

MOS 1585
First sergeant

MOS 3120
Food inspector

MOS 3129
Furnace operator

MOS 3050
General carpenter

MOS 4055
General clerk

MOS 4812
Heavy weapons infantryman

MOS 4931
Heavy vehicle driver

MOS 3064
Hoist operator

MOS 4781
Infantry reconnais[illegible]

MOS 2356
Labor foreman

MOS 5356
Laborer

MOS 4345
Light truck dr[illegible]

MOS 1114
Machinist, master

MOS 4056
Mail handler

MOS 3034
Mason

MOS 3037
Meat cutter

MOS 3666
Medical aidman

MOS 1824
Mess steward

MOS 3905
Motor adjuster

MOS 1014
Motor sergeant

MOS 3203
Packer

MOS 3271

Maj Gen Floyd L Parks

We are judged by what we do . . .

On duty and off duty

JUST BEFORE DAWN one day in August 1952, two Greyhound buses roared along U.S. Highway 81 near Waco, Texas — one headed north for Dallas, the other south for San Antonio. Approaching each other over a small rise, the two buses smashed head-on and burst into flame in one of the worst bus accidents in our nation's history. Twenty-eight people were killed, but 25, all of them injured, got out.

Two of the passengers were saved when an "unidentified soldier," thrown free by the crash, returned to the flaming wreck. Without thought of personal danger, he carried to safety an 11-year-old girl and a 17-year-old housewife.

Although unidentified by name, this man was identified by profession. His uniform marked him a soldier; his action marked him the kind of soldier his country, his Army, and his fellow passengers could remember with pride.

What he did in the early morning hours on a Texas highway left with the public a favorable opinion of a man and a favorable opinion of the Army. An opportunity to save the lives of our fellows is not given to all of us. Life makes its more dramatic demands on the few.

We all, however, have one thing in common — a duty of vital importance to our Army and the country: to live up to the best traditions of the uniform we wear.

It is a proud symbol, that uniform. Behind it lie 176 years of American fighting history, including some of the most important chapters in the history of human freedom.

The man who lives up to the best traditions of his uniform is the Army's best PIO. For no professional public relations man, no public information specialist can build for the Army the good opinion that the soldier can; no expert can rebuild overnight the prestige lost for the Army by the careless action or words of a soldier.

Today, with 60 percent of our national budget going to the military establishment, we are in a period of the greatest mobilization — short of total war — the country has ever known. In meeting Communist aggression in Korea while, at the same time, helping to strengthen the defenses of the free world everywhere, the Army has done a tremendous job. The continued ability to do that job depends essentially on men, money, and materials. To obtain these means, the Army needs the confidence and understanding of the people. This is a fact we must never forget. The Army is in the public service; it is public property. Thus, the people are entitled to know about it. Your job is to help them.

Commanders alone cannot accomplish the task. Since the most frequent and widespread associations between the Army and the

public are those made by the individual, each person in the military service must assume responsibility as a public representative of the Army.

In this mission, we are in the anomalous position of being both the salesman for a product and the product itself.

As the product, we will be judged, generally speaking, by the way we behave — "performance" in commercial public relations phraseology.

How we behave on the battlefield — a soldier's ultimate testing — is something the folks in our communities read about in newspapers, a secondhand experience. What we do at home is something they can see for themselves. It is well to remember that public confidence in our battlefield potential can be enhanced or weakened on Main Street.

As the "Product," we must bear in mind that appearance contributes to this over-all evaluation of the Army through its personnel. The woman who said, discussing her new neighbors, "I'm sure he isn't an Army man; he doesn't carry himself like one," unconsciously expressed admiration for the training and discipline evidenced by good military bearing.

By the smallest tokens of training — bright brass, well-shined shoes, erect carriage — we reassure those who have every right to assurance. By the smallest act of consideration and courtesy in our daily contacts with the general public, we remind our fellow-citizens that theirs is an Army of dependable men.

Sometimes, however, we must tell the Army story and become, in effect, "salesmen." Let us consider our responsibilities in that regard.

Two primary qualities distinguish the successful salesman whatever his field: information about his product and enthusiasm for it. Unless he has both he stands small chance of convincing anyone else that it is needed.

So when we assume this role — and it is one that we put on with the uniform — we must document it with all the information we can obtain. We must know our subject and, unless restricted by security, discuss it intelligently.

For instance: Ours is not a military-minded country and you will doubtless be in contact with people who question the importance of present-day military spending. The basic answer to this, of course, is as old as our history. Thomas Jefferson defined our position when he wrote to John Adams in 1816: "We are destined to be a barrier against the return of ignorance and barbarism." Former Secretary Pace gave the present-day interpretation of this basic reasoning in dollars and cents terms when he said in a recent speech:

"In the 10 years before World War I, we spent only two or three hundred millions annually in our defense, although the signs of impending war were all around us. The immediate cost of World War I to us was about 33 billion; the ultimate total may reach 100 billion.

"During the fateful '30's, with Hitler, Mussolini, and the Japanese war lords embarked on programs of conquest, we spent only about one billion a year for defense. The immediate cost of World War II was

about 330 billions; no man can figure its ultimate cost. In trying to set an estimate, Paul Hoffman said it might reach more than a trillion dollars.

"So, if this expensive build-up can prevent an even costlier war, any reasonable sacrifice — particularly in time, money, and inconvenience — is worth it. By preventing war we save money, we save material, we save resources, and — most important of all — we save lives . . .

"Our ultimate hope is that a peaceful solution to the world's problems will emerge. The stakes are the highest in our history. And if the war we are trying to prevent does come, the steps we have taken to build our military strength will have added to our defense structure materially."

These are impressive figures; the Secretary has expressed a sound philosophy — a present-day echo of Jefferson's awareness that we would stand as a buffer against aggression and barbarism. The well-informed Army PIO — you, the individual soldier — can advance the cause of the Army and the entire security program when he is equipped with such information.

Facts, again, are powerful ammunition when you must counter adverse comments on selective service. Your farmer and industrial friends as an example, may be disgruntled because of the need for a preventive military program; their criticism may be that selective service robs them of the manpower needed to fulfill their production requirements.

On the surface, this seems a well-justified complaint. But it is only the obverse side of the coin. The reverse shows the Army discharging men back into civilian life at about the same rate that selective service is taking them away, and these discharged soldiers return to their communities with newly-acquired skills or with old skills enhanced.

That 54,000 men are currently returning to their homes and the civilian manpower pool each month is a *fact;* it is the informed way to counter criticism.

It is not enough, however, that we be prepared to answer our critics. A sound public information program has been described by one expert as "good works understood by the public." It is incumbent upon us, therefore, to see that the Army's "good works" are known to the people who support us.

You will want to make common knowledge the fact that Medical Corps research and development has decreased by some 50 percent the death rate from combat wounds since World War II. Indeed, from helicopter front-line evacuation through Mobile Army Surgical Hospitals, to physical and occupational therapy in the Zone of Interior, the story of the Medical Corps is probably the most universally stirring one to come out of the Korean War.

As another instance: Quartermaster Corps' preoccupation with individual welfare embraces hundreds of projects during a given year. The whole program, however, could be translated to the public through one item: the sealed, insulated rubber combat boot which has reduced cold-weather

foot injury almost to non-existence. This "good work" will have tremendous meaning to a people — to the families of veterans — who still remember the dread winter of 1950 in Korea and the foot injuries suffered by our soldiers there.

There is no more dramatic example of the Army's quiet, little-understood program to broaden the horizon of its men than Army education. Even to Army personnel it is impressive that in fiscal year 1952, 43,870 soldiers completed their basic education (4th and 5th grade), that 6,235 completed the eighth grade and that 46,046 completed their high school education.

Lives saved, lives enhanced — all these are the result of Army programs that have broad personal meaning for every American.

Although designed to improve our military materiel and techniques, all mankind, as well as Americans, will profit from those benefits.

Every technique developed for saving lives on the battlefield will, sooner or later, be utilized in saving lives at home — the lives of people injured in fires, auto, and train wrecks, and other disasters. The same combat boot that protects a man from the Korean winter will eventually serve a Minnesota farmer. The man who broadens his formal education in the Army goes back to his family and community a better-equipped breadwinner, a better - equipped citizen.

These are the things that the American public is entitled to know; this is the message that you as a PIO should be carrying daily.

Your value in this respect, of course, will be tempered by your enthusiasm, for your subject. Enthusiasm, however — in yourself as yourself as well as those you contact — follows closely on the heels of knowledge.

So I cannot over-emphasize this point: *Know your Army!* Read its publications; take a scholar's approach to such interpretative matter as *Troop Information Topic, Army Information Digest, Officer's Call;* scan every line of the definitive speeches made by your Army leaders. The better-informed you are, the more interested you will become and the better soldier you will be. You will be a better PIO for the Army, too, as you interpret the Army for your friends and acquaintances.

The corollary to this, of course, is that you limit yourself to discussing the things you know and those things that are unclassified. The careless, casually-worded "guess" about the reason behind a new Army policy often starts out in the club locker-room and ends up in a newspaper headline; descriptions of equipment testing, highly-classified subject-matter can start their way into the news in a chatty, folksy letter to the family. "Unidentified" as this Army "spokesman" may be — inaccurate and unreliable his facts — he is a spokesman nonetheless and has not only given "aid and comfort to the enemy" but has created public misunderstanding as well.

You will never, of course, lack opportunity to tell the positive Army story. Whether in your home community or in the community where you are stationed, your audi-

ence exists all through the course of everyday living.

You can go a step further, however, if you want to do a real job: become a participant in the inner life of your community. When on leave, make a point of visiting your service or social club meeting, attend your church. In the community where you are stationed, join or affiliate with service clubs, fraternal organizations, athletic centers, Parent-Teachers Associations and churches — all those places that provide a common meeting ground for the military and the civilian. Letters home can be invaluable public information devices, particularly when you can give the positive slant to a controversial and misunderstood Army policy currently in the news.

The more you tell people about the Army, whether by letter or in person, the better understanding and appreciation they will have of it.

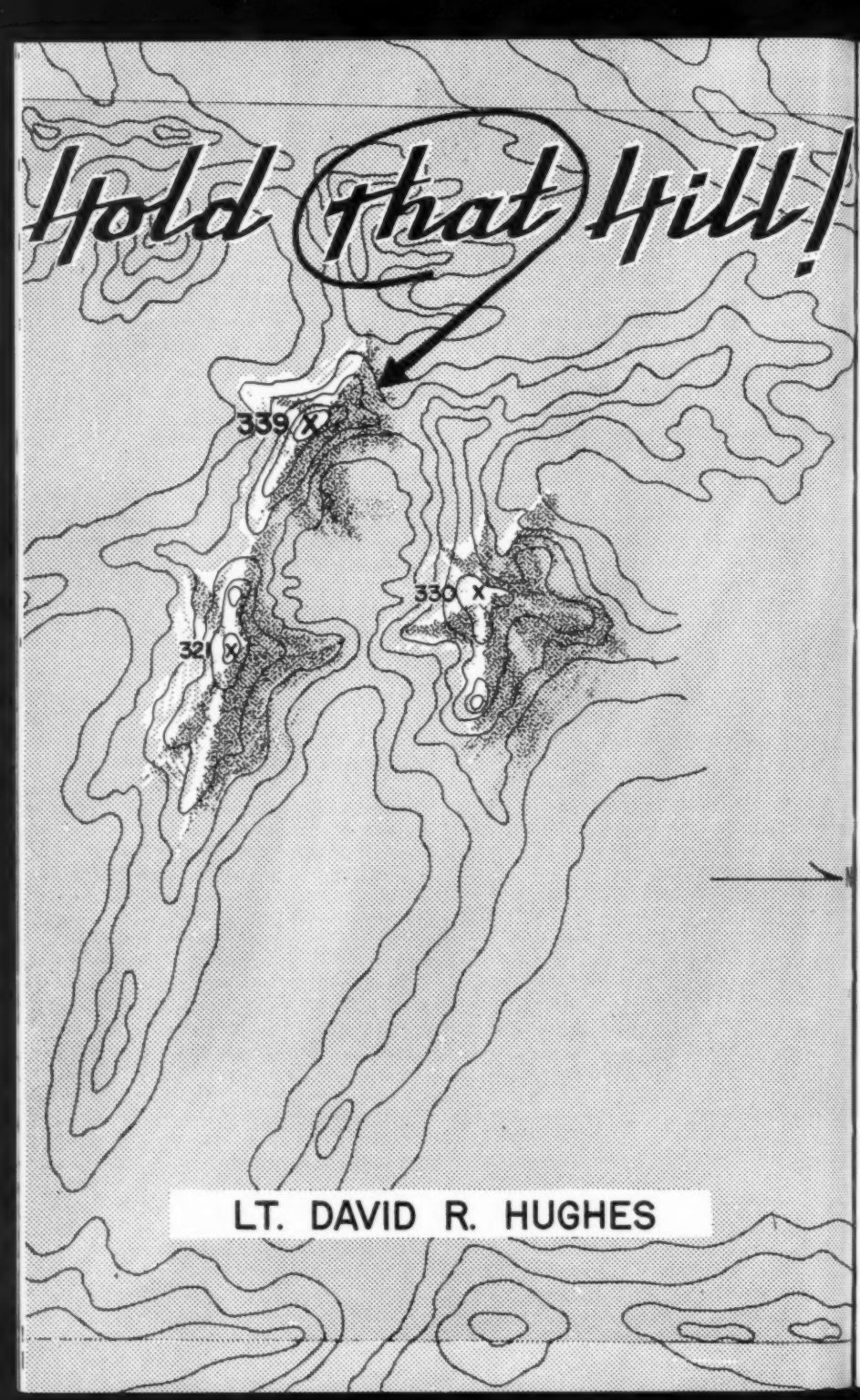
You have everything to gain by this increased understanding. As the Army grows in prestige, so grows community respect for you and what you do; so, also grows civilian support for the national security program.

Conversely, unless the country as a whole has this understanding of the Army's mission, activities, and accomplishments, we will lose public support.

The threat to our democratic ideals, the threat to our place in the family of nations implied in such a loss is well-known to us; it is our responsibility to make it as well-known to the civilian community.

Meeting that responsibility is part of your mission as a PIO, your permanent "other assignment" which, properly executed, will prove the most challenging and rewarding job of your whole Army career.

The soldier is the Army. No Army is better than its soldiers. The soldier is also a citizen. In fact, the highest obligation and privilege of citizenship is that of bearing arms for one's country. Hence it is a proud privilege to be a soldier — a good soldier.


Hold that Hill!
339
330
321
LT. DAVID R. HUGHES

A Small Unit — Co. "K," 7th Cavalry — fighting near Yonchon in September 1951

TAKING HILL 339 wasn't so bad — but holding it was different. It looked to us as though the enemy had only one mission in life — to knock us off that hill. Let's see why this particular hill and the terrain surrounding it were so important.

Terrain

The average elevation of the friendly MLR and of the enemy MLR 4000 yards away was approximately 300 meters (title page). Between the two opposing lines was a series of short narrow valleys and 300 meter hills. The major exception to this was a triangle of three hills about 1000 yards from the enemy positions. These hills, 339, 321 and Ridge 330, formed a rough triangle with 339 the apex pointing toward the enemy. The peaks were about 1000 yards apart. Hill 339 was commanding terrain in the area and for two months was alternately in friendly and enemy hands. It provided UN forces a good observation post for the placing of artillery on enemy emplacements, artillery and mortar positions. It was also an excellent advanced departure point for patrols.

Mission

For these reasons the 3rd Battalion of the 7th Cavalry was ordered to seize and hold Hill 339 as a patrol base. It was decided that after seizure, K Company would hold 339 and the connecting ridges for a frontage of 900 yards, L Company would tie in with K Company and extend over 321 for a 1000-yard front and I Company on the other flank of K Company would tie in at the road and extend back over 320 for a 1000-yard front. Due to the rough nature of the terrain and the necessity for maximum protection especially toward the front and flanks, which were cross compartmented with many minor ridges and ravines — the 700-yard rear of the patrol base was merely outposted and the valley closed off by tanks.

Seizure of Hill 339

The area was seized without organized opposition on 21 September. It was noted that the enemy had outposted Hill 339. On the approach of K Company's leading platoon the enemy set out a red smoke signal before withdrawing. K Company moved into its assigned area and as soon as friendly troops began clustering near the peak, the area was subjected to a twenty-minute intense enemy mortar and artillery bombardment that was placed accurately along the ridge line and over the peak. There were several casualties. This enemy fire began a pattern that did not vary for seven days. Due to the advanced position of the hill and a slightly concave enemy MLR on the front of it, Hill 339 was under enemy

— Title page by Miss Hester Caffey

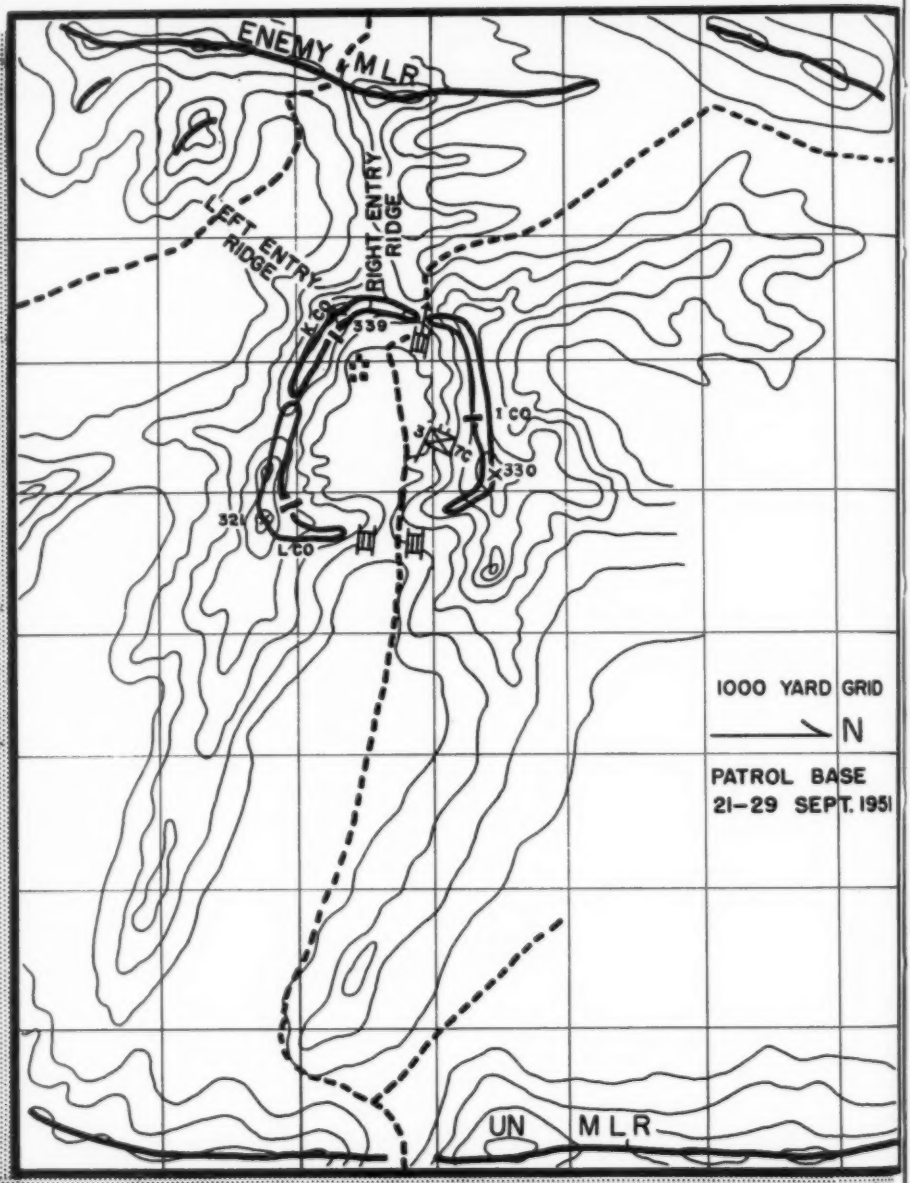


Figure 1. Patrol Base, 21-29 Sept 1951. — *Hester Caffey*

observation from three sides, and any movement on the peak or grouping of personnel on the reverse slope drew immediate preregistered fire.

Problems of Defense

The hill itself presented several problems of defense. K Company's area was "L" shape with two ridges joining at the peak. The peak was a symetrical dome, very steep on the front face and dished out on the rear, so that immediately behind the very crest there was only a ten-yard slope before it dropped off as a rock cliff for another 20 yards. This drop off extended right and left for a hundred yards behind the hill, permitting no direct foot route to the peak, but rather forcing us to come to the ridge on either side of the obstacle and then to the peak.

There were two direct enemy routes into the hill. These were on two entry ridges 200 yards apart that came into the shoulders of the peak and joined the two flank ridges that formed the L. Figure 1 shows the area. This brought up two important decisions for the company commander: How to deploy the platoons for the best defense of the peak. Where to place his headquarters and the mortar section. After a careful look at the terrain, the company commander reasoned that the battle for the peak would be fought on the flank ridges. Any direct assault on the front face could easily be resisted. It was bare and enemy would have to physically crawl up the steep slope. If the enemy attempted envelopment of the hill, the rear cliff prevented him from assaulting the position from directly in the rear. He still would be forced to attack the highest ground up the two flank ridges. But if the enemy were able to seize the two critical points on either flank of the peak, where the flank ridges and the entry ridges joined, then the peak would be isolated, lateral communication cut, and because of the convex shape of the company front, the enemy would have short range direct fire and observation on the rear slope.

K Company
Commander's Decision

With these enemy possibilities in mind the company commander decided on a flexible defense with the greatest attention paid to the two entry ridges. He deployed the first platoon on the left, tying in with L Company, and extended their front up to the critical ridge juncture on the left shoulder of the peak. The attached heavy machine gun section from heavy weapons company was given the left entry ridge and twenty yards further up the hill to the right to defend. One 57-mm recoilless rifle was employed to cover the left entry ridge. The peak for a front of approximately fifty yards was covered by ten attached ROK soldiers with one light machine gun covering the front face. The second platoon went from the military crest on the right of the peak down over the right entry ridge for a two hundred yard front along the flank ridge. The other 57-mm recoilless rifle was placed to cover the right entry ridge. The third platoon joined the second and defended a 300-yard front joining I Company at the road on the right. A tank was

placed by the battalion commander on the road at the top of the pass. While a section of tanks would have been more desirable, there was room for only one.

Placing the 60-mm Mortars

There were two basic choices for the 60-mm mortar section and company command post. Either could be emplaced on the peak where they would be confined to an area less than 15 yards from the crest and less than 25 yards from the riflemen's positions, or else down at the base of the sheer hill, an elevation difference of about 100 meters. If the enemy seized the two critical areas on the flank of the peak, then no route would be available to the OP, and the enemy could descend directly on the command post and mortars. Although the enemy 120-mm and 82-mm fire was particularly intense on the reverse slope of the peak, the company commander decided to place his mortars on the peak, on the right half, and his command post on the left half.

An organic ammunition trailer was placed at the base of the hill, 400 yards away, as an ammunition supply point. Two men with a sound power phone were there.

Enemy Artillery

There was a large number of enemy and friendly bunkers available for use until the men had a chance to get dug in. The company moved into position as rapidly as possible so that organization could be nearly complete by nightfall. However, the bald face of the peak was under direct observation and as the men attempted to get over the crest of the hill and dig in on the forward slope of the peak, the enemy placed heavy volumes of artillery and mortar fire on them with good effect. After several attempts to dig in on the front, the company commander directed that the forward slope of the peak be occupied after darkness. The intense fire made this a daily occurrence and permitted only two constant observers on the forward slope.

Preparation of Defensive Fire

As soon as he had walked the company front once to insure complete coverage of the ground, the company commander moved with his weapons platoon leader, 81-mm FO, 4.2 FO and artillery FO to the OPs available near the crest and planned his defensive fires. The types and locations of the planned and prefired concentrations are shown on Figure 2. The company commander directed that the 4.2 mortar concentration plotted on the right entry ridge be registered to within 150 yards of the friendly positions. He directed that the artillery concentration on the left entry ridge be registered to within 200 yards of the friendly fox holes. These distances were selected to give the maximum effect against the enemy who had been recently using the technique of closing his assaulting elements and supporting automatic weapons to within 200 yards of the objectives before assaulting so that normally placed defensive fires would fall beyond him.

The trajectory of artillery fires supporting K Company did not pass overhead when they fell in front of the left portion of the company zone, hence any dispersion affect-

ing the company would be caused more by errors in deflection than in range. This permitted the very close registration of artillery. However, the 4.2 mortars had 5 short rounds in the next 7 days. The 81-mm FO was given normal distance concentrations with particular emphasis on the extreme right flank and the road.

The 60-mm mortars were given concentrations all along the company front, and on the right entry ridge were registered to within 100 yards of the 2d platoon positions. The 60-mm mortars had an angle frontage of 270 degrees to cover with their three tubes. Because of this the tubes were laid on different concentrations, the center tube set on a flare concentration over the right entry ridge.

By nightfall half of the plotted concentrations had been registered. The company commander retained a contour sketch of the company front with all the defensive fires plotted and numbered.

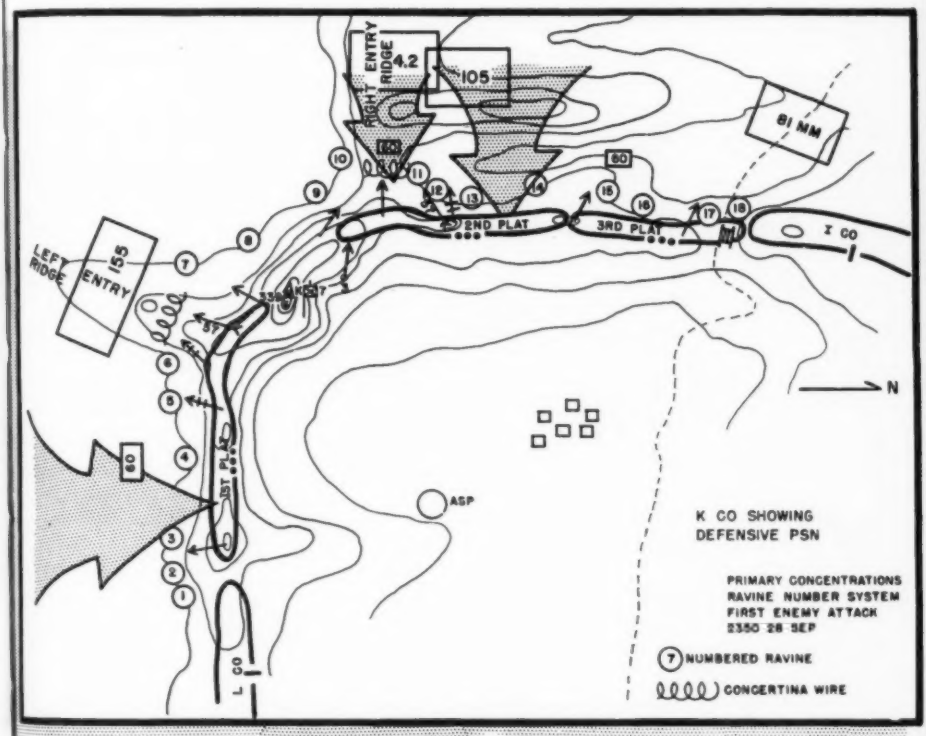


Figure 2. K Company showing defensive position. — *Cpl Jack Heron*

Communications

Due to the heavy enemy fire and anticipated action, an extensive communications network was planned and executed. A wire line was laid to each platoon from the CP for EE8 telephones. Wire was then laid between platoons as an alternate EE8 line. A sound power line was then run all along the company fronting in each platoon and continued down behind the hill to the company ammunition supply point and back up to the other flank, making a complete circle. Thus the line would have to be severed on both sides of a telephone to put it out of contact. Each wire line was laid over a different route. An SCR 300 radio was given to the 1st platoon and to the 3d platoon, with the extra radio at the command post. All radios were on the battalion command net. Two lines were run from the battalion switchboard to K Company; one dropped over the cliff behind the command post and the other ran up a flank ridge. The 4 operable company SCR 536's were given to the mortar section for fire control. The command post was within voice contact with the mortar section.

In spite of this communication setup, enemy fire caused wire contact to be lost with battalion headquarters on an average of three times daily. Within the company net, a wire was severed on the average of once every two hours for 7 days. This required continuous repair by the communications section. The platoon runners stationed at the company command post were used to help repair lines.

Ammunition

Extra ammunition was brought up the hill by Korean civilian carriers and platoon carrying parties. The first night each rifleman had three grenades, five bandoleers and a flare grenade on position. The light machine guns had 2000 rounds, the 60-mm mortars 200 rounds for the section, and the two 57-mm recoilless rifles had 25 rounds apiece. At the company command post a box of 25 hand grenades, 3 cases of bandoleers and 2000 rounds of machine gun ammunition were kept. This would permit some resupply flexibility. (The ammunition supply point at the bottom of the hill was only 400 yards away, but a round trip required almost 40 minutes.) About 20 trip flares were set out by the platoons. All the foregoing was over by 2100 hours on the first night.

Instructions by the Company Commander

1. The C-rations issued in the morning must last till the next morning since two Korean civilian carrying parties were destroyed by mortar fire.

2. The platoons were placed on a fifty per cent awake status. Platoon headquarters was required to check into the company switchboard every 30 minutes.

3. Before darkness the company commander required each platoon leader to tell each of his men:

a. That under mortar barrage each man must stick his head out from his bunker to observe every few seconds, since it was the enemy's practice to come in and enter

positions under their own mortar fire.

b. That in case the enemy penetrated the company line and their own position became untenable, they must move toward the peak and delay the enemy at each automatic weapons position. Under no circumstance were they to leave the ridge line and fall back toward the battalion command post.

c. That if casualties became heavy they must make certain the machine gun nearest them was manned at all times, since the machine guns would be the best defense against mass attacks.

Action 21 September

Enemy fire slacked off at 2030. The 2d platoon reported the sounds of digging to their front at approximately 2230. At 2330 an intense barrage of artillery, 120-mm, 82- and 60-mm mortar fire was received. As soon as the company commander determined the heaviest area of enemy fire, which was on the right flank ridge in the 2d platoon area, he requested defensive fire on the right flank concentrations. He also requested an artillery flare on the right.

In 10 minutes (2340) defensive fires were falling on the right but no enemy was observed. At 2400 another enemy barrage of all types fell on the peak and right flank. These artillery and heavy mortar fire suddenly let up, however, and only 60-mm mortar fire was received for some minutes.

An automatic weapon began firing from a position about 150 yards in front of the 2d platooon. Five minutes after this fire commenced, an enemy assault of approximately platoon strength came across the short saddle on the right entry ridge. They fired rifles and submachine guns, supported overhead by an automatic weapon. They came in while their light mortar fires were still falling.

The company commander ordered the 60-mm mortars to fire flares every minute and to fire the 2d platoon concentrations at a maximum rate. At the same time the 3d platoon reported an enemy column moving up the road in front of them. The company commander shifted the 81-mm fire to the road. They (3d platoon) held their fire until the enemy was within 100 yards of the tank position. When the tank opened fire with its fifty caliber machine gun, and the platoons flanking the road fired their weapons, the surprised enemy scattered and withdrew. The first enemy assault was halted by the 2d platoon. The enemy attacked again at 0045 but due to the illumination from artillery, 81-mm and 60-mm mortar flare, and the continuous 4.2 and 60-mm mortar fire within 150 yards of the 2d platoon, the enemy assault did not reach the 2d platoon riflemen. Defensive fires were lifted at 0115.

The 2d platoon reported that it was short of grenades and machine gun ammunition. They were resupplied from the company command post. The mortar section reported only 30 rounds left on position. A five-man carrying party was organized from headquarters personnel and sent to the ammunition supply point. (The mortar ammo bearers had to act

as riflemen on part of the extended line.)

At 0130 another barrage was received and a small enemy force, supported by three automatic weapons firing from a knoll 50 yards in front of the 2d platoon, attempted to enter the platoon positions by infiltration and occasional rushes in small groups. Close defensive fires were called for and the company commander ordered the 60-mm mortars to fire within 75 yards of the 2d platoon. The enemy was repulsed.

The 1st platoon reported movement within 200 yards at 0400. 81-mm defense fires were called in for 10 minutes. At daylight 5 enemy dead were found within 10 feet of the 2d platoon's light machine gun. Enemy equipment was found along the right flank.

Company Commander Asks Questions

The company commander, after directing that the company continue to improve positions and resupply, closely questioned the members of the 2d and 3d platoon as to what they had observed the night before. By 1000 hours the company commander determined where the enemy had placed his supporting weapons and had a picture of his assault technique. During the action four breaks had occurred in the right flank telephone lines, and two in the battalion line, but wire communications had been maintained on alternate lines.

Problems and Solutions

Certain problems arose during the action. These problems and the company commander's solutions were as follows:

1. Problem: The 60-mm mortars were too slow in delivering their initial rounds of defensive fires. Solution: This was corrected by having the 60-mm weapons platoon leader constantly rehearse the mortar section on the shifting of fires, and to have prepared rounds on hand to fire. This procedure cut the 60-mm elapsed time to 15 seconds for an initial round on the normal barrage target, and to 30 seconds for a new concentration.

2. Problem: Riflemen and machine gunners had fired indiscriminately and too rapidly, even when not under attack. Solution: The company commander ordered the platoon leaders to exercise more fire discipline and to pass fire commands through the squad leaders during a fire fight.

3. Problem: During the initial phase of the attack the company commander could not get accurate enough information from the platoons as to the exact position of the enemy in front of the lines. Solution: The company commander devised and executed this plan. On the second day he walked the company front from left to right. Beginning with the leftmost ravine, he numbered each ravine consecutively across the company front. (See Figure 2.) There were 18 such ravines along the broken ground leading into the ridges occupied by the company. He required each rifleman to memorize the number of the ravine in front of him, and to post the number on a cardboard sign in his fox hole, and also on a tree or rock outside his fox hole.

Each ridge separating the ravines was numbered by joining the numbers of the ravines adjacent to it. Thus the ridge between ravines 6 and 7 was numbered 67. Each platoon leader had a sketch of his area and a sketch contour map with the numbers on it. The company commander retained a company sketch.

Thus each man occupying a fox hole could quickly and easily notify the squad and platoon leader of any enemy to his front, and the company commander could pinpoint the enemy and bring more accurate fire on them. By posting the numbers visibly, changes in personnel were handled with no loss of control, and a rough guide of the company area was furnished to guide wiremen or other personnel, even during the night, to specific points.

Further Preparation and Action

For the remainder of the day, more trip flares were laid, overhead cover worked on and defensive fires were adjusted for better control. Two flame throwers were brought up and placed on the right entry ridge. The company commander carefully approved each automatic weapon emplacement.

The enemy probed the company positions for the next five nights. He still prevented the forward slope of the peak from being organized during daylight by his continuous fire. Attempts were made to lay barbed wire, but casualties became excessive. However, eight barbed concertina rolls were placed, blocking the two entry ridges to the peak. A small area was finally covered with antipersonnel mines 50 yards in front of the 2d platoon positions.

The company sent daily platoon sized patrols out on battalion order, and they ran into stiff resistance 800 yards from Hill 339. This later proved to be the enemy MLR. During the day, the artillery FO fired continuously on enemy positions and weapons with good effect. By the 28th of September the enemy decided that the patrol base was a painful thorn near his MLR and he made a strong effort to remove the United Nations troops occupying it.

By this time the company had evacuated 29 casualties which had resulted from enemy artillery, mortar fire and a patrol action by the 1st platoon. This required replacing some riflemen with weapons platoon ammunition bearers and manning part of the peak with headquarters personnel.

Morale

The strain of continuous bombardment was beginning to tell on the nerves of the men and the nightly probes robbed them of rest. No hot meals could be brought up. The company kitchen, however, went all out to provide hot coffee and soft pastry every day. This supplement to the combat ration raised morale considerably. Realizing the morale situation confronting him, the company commander made a point of visiting and talking to each man for a few moments each day.

The company commander requested and received three additional heavy and one light machine guns. He positioned two of the heavy machine guns in the 2d pla-

toon zone to cross fire the entry ridge on the right, and the other he kept as a company reserve near his command post. The light machine gun was placed on the left portion of the peak and was manned nightly by headquarters personnel. Weapons — especially machine guns — had a way of bolstering morale.

Night of 28 September

The evening of the 28th was filled with heavy enemy artillery and mortar fire all along the company front.

At 2330 the enemy directed a heavy barrage on the peak of Hill 339. The 1st platoon reported two trip flares had gone off in draws number 3 and 4. The company commander called in all defensive fires along the company front with the exception of the 60-mm mortars. He called for artillery flares on the left and 4.2 flares on the right flank. At 2340 small arms was coming up the ravines into the 1st platoon positions.

At 2345 the company commander noted a red Very pistol star going up on the left flank and one on the right. Immediately a barrage of 120-mm mortar fire landed exactly on the peak of 339 while small arms fire fell into the 2d platoon from the ridge 50 yards to their front. By 2350 an enemy company was attacking the 1st platoon up draws 3 and 4, while an enemy company attacked the 2d platoon in draws 13 and 14 and across the entry ridge.

Meanwhile the company commander had placed 60-mm fire on the enemy on both flanks and ordered mortar flares every half minute. The enemy overran the left flank of the 1st platoon in a short while and then directed their attack up the ridge toward the peak. By 2400 the enemy had also penetrated and overrun one squad of the 2nd platoon and turned their attack up the ridge. The enemy moved across behind the cliff to the rear of the company and joined with those on the other flank, completing the double envelopment and cutting the wires to battalion headquarters. The 3d platoon had not been attacked. Enemy mortar fire continued to come in on the mortar position and company command post.

29 September

The force of the enemy assault rolled up the flank of the 1st platoon, overrunning a light and heavy machine gun and the platoon command post. The platoon leader, however, gathered the men around him and delayed the enemy for several minutes while the wounded were carried to the company command post. Part of this delaying group was overrun and the platoon fell back still farther up the hill.

On the right flank the enemy continued to attack up the ridge and overwhelmed a heavy machine gun. The 57-mm gunner pulled back and when the enemy started firing the captured machine gun, he knocked it out with his recoilless rifle. A second assault was launched across the right entry ridge and the machine gun at the junction of the two ridges was under attack from two directions. Riflemen formed a line there, however, and repelled the enemy.

On the left flank a second assault

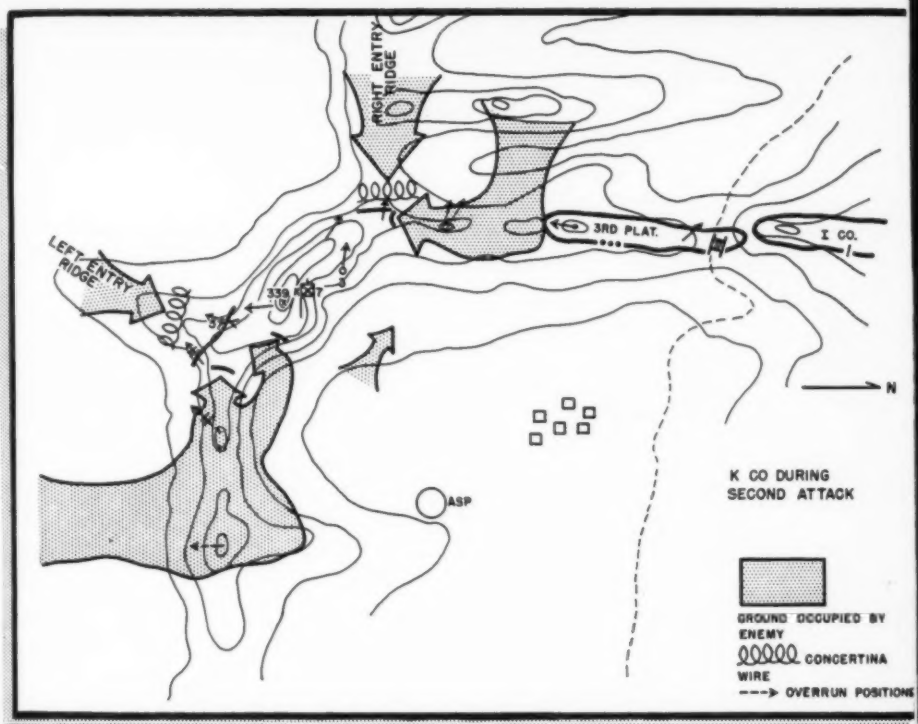


Figure 3. K Company during second attack. — *Cpl Jack Heron*

started up the left entry ridge toward the 57-mm position. The gunner held fire until the enemy started to cross the concertina. He then fired with good effect. The remainder of the 1st platoon was scattered by enemy and the company commander intercepted the stragglers at the peak and formed a new line tied in with the 57-mm around to the reverse slope at the cliff. The enemy followed after the withdrawing platoon.

The Enemy Closes In

(See Figure 3)

The company commander quickly placed his reserve, one heavy machine gun, in the path of this assault. He directed a radio operator to man the weapon. The enemy was now within 20 yards of the command post bunker, which was filled with wounded. The heavy machine gun was placed just beyond the bunker and inflicted heavy casualties on the attackers. The enemy set up 60-mm mortars on the ridges on both flanks and placed fire on the weapons on the peak at a range of 100 yards. The heavy machine gunner on the left waited until he saw the powder sparks fly from the tube below him and then fired destroying the crew and weapon.

The company commander real-

ized that his left flank, now pushed to within 30 yards of the peak, was in danger of giving way. He ordered the artillery FO to bring fire in as close as possible on the left. The enemy succeeded in getting behind the 57-mm recoilless rifle and the lower heavy machine gun. The company commander ordered the first sergeant to go down to these weapons and displace them upward to form a line higher on the hill. As soon as the two weapons started to pull back, the enemy took advantage of the darkness and confusion to try and mingle with the gun crews and walk to the peak. A few succeeded but they were shot by the headquarters personnel. It was now 0120.

Another enemy attack started on the right flank and the company commander moved to that flank to see how he could influence the action. The enemy had reached the 2d platoon command post and forced them out and up. The company commander, seeing the light machine gun under attack from two directions, ordered the platoon to withdraw higher and tie in with the mortar platoon. This would present a complete primeter around the peak. Enemy small arms and automatic weapons fire covered the rear slope and made the firing of the 60-mm mortars difficult. One mortar base plate broke, but by resetting the tube each time, that weapon was able to fire flares. The enemy attempted to attack from the rear and crawl through the mortar positions, but the squad leaders and section sergeant killed them individually.

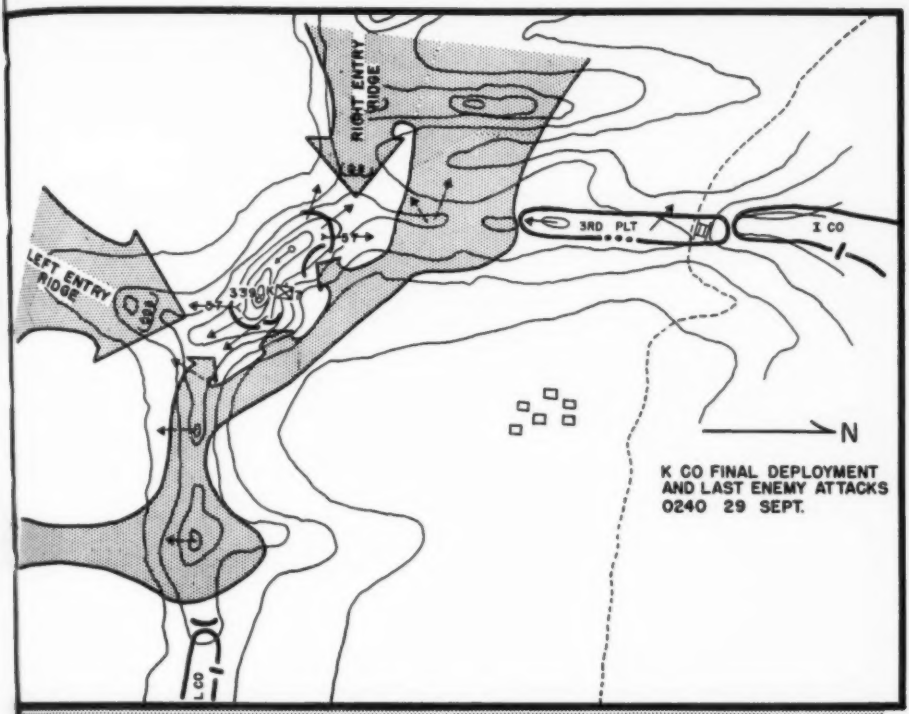
Fire control became increasingly difficult for the 60-mm mortar crews. One squad leader crawled to the topographical crest and began adjusting fire by calling out handle turns and degree raises. The fire continued to be effective in front of the 2d platoon at a gun to target range of 55 yards where enemy were moving in all along the platoon front. Another mortar base plate broke. It was reset after each round. Artillery and mortar flares became unavailable at 0200. A C-47 flare plane appeared at 0330, however, and gave good general illumination the remainder of the night.

The Commander's Estimate of the Situation

The company commander's estimate of his position at this time was roughly this: The enemy held 200 yards of terrain on the company right flank and 300 yards on the left flank. The peak was isolated. The enemy behind him made evacuation or resupply impossible. The company still had a perimeter established around the peak with four machine guns and approximately 50 men. One mortar was still operable but had only 35 rounds of ammunition. Carbine ammunition was low but other types were adequate for at least one more assault.

The enemy, reasoned the company commander, was probably preparing for another assault. He reported these facts of the situation to battalion headquarters via radio and then prepared for the enemy attack.

He moved the good mortar to the top of the peak with half of the remaining mortar ammunition.



—Cpl Jack Heron

Figure 4. K Company deployment and last enemy attacks. 0240 29 Sept.

It was registered in on the left ridge at 75 yards range. He ordered the wounded men be carried to the open fox holes on the very peak. He announced that were the enemy to overrun a portion of the line the remainder would draw halfway up to the peak (which was 25 yards from their present positions).

The Enemy Strikes

(See Figure 4)

The enemy attacked again at 0240. On the left, an apparently new company moved up the entry ridge toward the barbed concertina wire. The artillery FO moved to a very exposed position overlooking that ridge and called 105 and 155-mm fire to within 150 yards of himself and the riflemen. By stacking used BA 70 batteries around him, he maintained some cover and the batteries absorbed several rounds of small arms. The reserve heavy machine gun overheated. The coolant can was shot through, but a can of cold coffee was used successfully as a substitute.

When the enemy attack reached the barbed wire, the artillery FO called for maximum fire. This fire caught the center and trailing elements of the enemy unit. They withdrew, carrying dead and wounded. The leading units tried

to assault the reserve heavy machine gun which would have given them entry to the peak of the hill. The machine gunner, however, placed effective fire on them. The few enemy that reached the skirmish line were killed by grenade and carbine fire.

On the right the enemy assaulted again, but in less strength. At 0300 about 50 enemy rushed across the saddle firing their submachine guns in an attempt to overrun the light machine gun there. A rifleman of the 2d platoon found he was in a fox hole complete with a flame thrower. He turned it on the enemy in one long burst just as they reached grenade range. Eight or ten enemy were caught in the burst. The light machine gunner opened fire, and the enemy skirmishers withdrew, throwing down their weapons.

That was the last enemy assault. It was now 0330. Ammunition was nearly exhausted.

Within 30 minutes enemy indirect fire resumed on the hill and heavy concentrations were placed on the flanks of the peak, preventing any movement on those ridges. At first light the company commander ordered the 2d platoon to attack down the right ridge and clear the enemy there. This was done, but no live enemy remained. Contact was reestablished with the 3d platoon. The company commander then went with the 1st platoon down the left ridge, clearing it. Large numbers of enemy dead were found along both ridges.

Firing started again on the right flank of the 2d platoon at 0630. It was the fire of disorganized isolated groups of enemy who were attempting to escape toward their MLR. They were taken under tank, mortar, artillery and small arms fire with good effect.

By actual count 77 enemy dead were counted within the company perimeter after the action. The dead outside the perimeter were difficult to count since enemy fire continued to c o v e r the forward slopes. However, from the reports received from a p a t r o l which moved along the right entry ridge, from the counted KIA and from the disorganized state of the enemy in the morning, the estimate was made that 500 casualties had been inflicted on the enemy. One live prisoner was taken. He was a squad leader and stated that a reserve enemy battalion had been used in the attack. Friendly casualties were 11 KIA, 16 WIA and 1 MIA.

Success

K Company had held 339. The men were exhausted, the company was still under fire — but morale was high. The company commander realized, as have company commanders before him, the deep satisfaction that comes with a successfully accomplished mission.

Publication of "Hold That Hill" should not necessarily be interpreted as reflecting the thought of The Infantry School or the Infantry School Quarterly.

What's New!

The following information provides a means of keeping up-to-date on matters of professional interest.

New Manuals

FM 57-10, "Tactics and Techniques of Pathfinder Troops," presents the organization and employment of pathfinder troops. It describes and explains how to use electronic and visual aids as well as aerial delivery containers. The various techniques of marking drop zones are explained. One chapter is devoted to pathfinder duties during combat operations.

●

FM 21-30, "Military Symbols," was printed in June of 1951. It appears in this column because so many say they've never heard of it. It contains many military symbols not previously used by the Army. This is particularly true of the weapons symbols. The manual includes a chapter on military abbreviations.

●

FM 23-80, "57-mm Rifle, M18," is a complete revision of the former manual. This edition covers mechanical training, crew drill, marksmanship, technique of direct fire, technique of fire from defilade and advice to instructors.

●

FM 23-81, "75-mm Rifle, M20," is another complete revision. It spells out mechanical training, crew drill, marksmanship, technique of fire and offers advice to instructors.

●

TM 57-220, "Technical Training of Parachutists," details the various types of training required to produce an accomplished parachutist. It includes information on the duties of the jumpmaster, parachute familiarization training and offers advice to instructors.

●

New Training Circulars

TC 33, "Combined Arms Units in Atomic Warfare," is an introduction to the tactical employment of atomic weapons. It discusses the problems of command, intelligence, logistics, communications and operations.

TC-( ), "Command Responsibilities, the Individual Soldier's Load,"* discusses the position of command in the matter of lightening the load of the soldier. It describes in detail the duties of the various echelons of command related to issue and turn-in of equipment, and gives useful hints on ways of carrying equipment.

●

TC 31, "Recoilless Rifle Platoon," covers the mechanical training and technique of fire of the 105-mm Recoilless Rifle. It also gives the organization and tactical employment of the new platoon.

The recoilless rifle platoon is now part of the heavy weapons company of the Infantry and airborne Infantry battalions. It is, in effect, a redesignation and reorganization of the 75-mm rifle platoon. The platoon is composed of a platoon headquarters and three sections — two 105-mm rifle sections of two squads each, equipped with the 105-mm rifle, M27, and one 75-mm rifle section composed of two squads, each equipped with the 75-mm rifle, M20. Platoon strength is one officer and 38 enlisted men.

The platoon headquarters and 75-mm rifle section are identical with those in the old 75-mm rifle platoon with two exceptions. The platoon sergeant is now a M/Sgt, and the 75-mm section leader a SFC.

Each 105 section headquarters has a SFC section leader, a PFC light truck driver, and a ¾-ton truck and ¾-ton trailer. Each 105-mm squad contains a Sgt squad leader-gunner, a Cpl assistant squad leader, two PFC ammunition bearers, a PFC light truck driver, and an M27 rifle mounted on a ¼-ton truck.

With the advent of this new organization the 105-mm rifle becomes the primary battalion antitank weapon. Its antitank rounds, HE, AT-T and HEP-T, have full effect up to the maximum range of the weapon (9,300 yards) and are capable of knocking out any known tank. The maximum effective range of the weapon when used in the antitank role is approximately 1,700 yards.

Changes to Field Manuals

Change 3, FM 7-10, "Rifle Company, Infantry Regiment," re-emphasizes the importance of our triangular organization. It also provides information on attack positions, sniping, concealment, committing the reserve, communications and close air support.

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*Number not known. Circular is now being printed. Distribution will be made in the near future.

Change 3, FM 7-20, "Infantry Battalion," covers the tactical employment of the battalion, forward air controllers, communications, orders and tactical air support.

●

Change 3, FM 7-40, "Infantry Regiment," provides additional information on the tactical employment of the regiment, operation of the command post, employment of air power, airborne operations, and operations orders.

Note: As the above changes point out, the term "reserve squad" or "reserve platoon" is now substituted for the term "support squad" or "support platoon," when the term is used to designate one of the rifle squads or rifle platoons of a rifle company.

●

Change 3, FM 23-92, "4.2-inch Mortar, M2," adds three chapters to FM 23-92 and introduces the new M30 Mortar. It covers the mechanical training of the new weapon, crew drill and the gunner's examination.

●

Change 2, FM 23-85, "60-mm Mortar, M19," gives additional information as well as examples of fire commands. It also discusses both the bracketing and creeping methods of adjustment and section fire.

●

Change 3, FM 23-90, "81-mm Mortar, M1 and M29," adds four chapters to FM 23-90. It gives the details concerning the new M29 Mortar (see The Infantry School QUARTERLY, January 1953). It also covers mechanical training, crew drill, gunner's examination and a description of the M23 mount.

Additional Fire Power

The Department of the Army recently authorized one additional Browning Automatic Rifle, Cal. 30 M1918A2, for each nine-man Infantry rifle squad and in all Infantry and airborne Infantry regiments in the Zone of Interior. The issue of this rifle is contingent upon its availability.

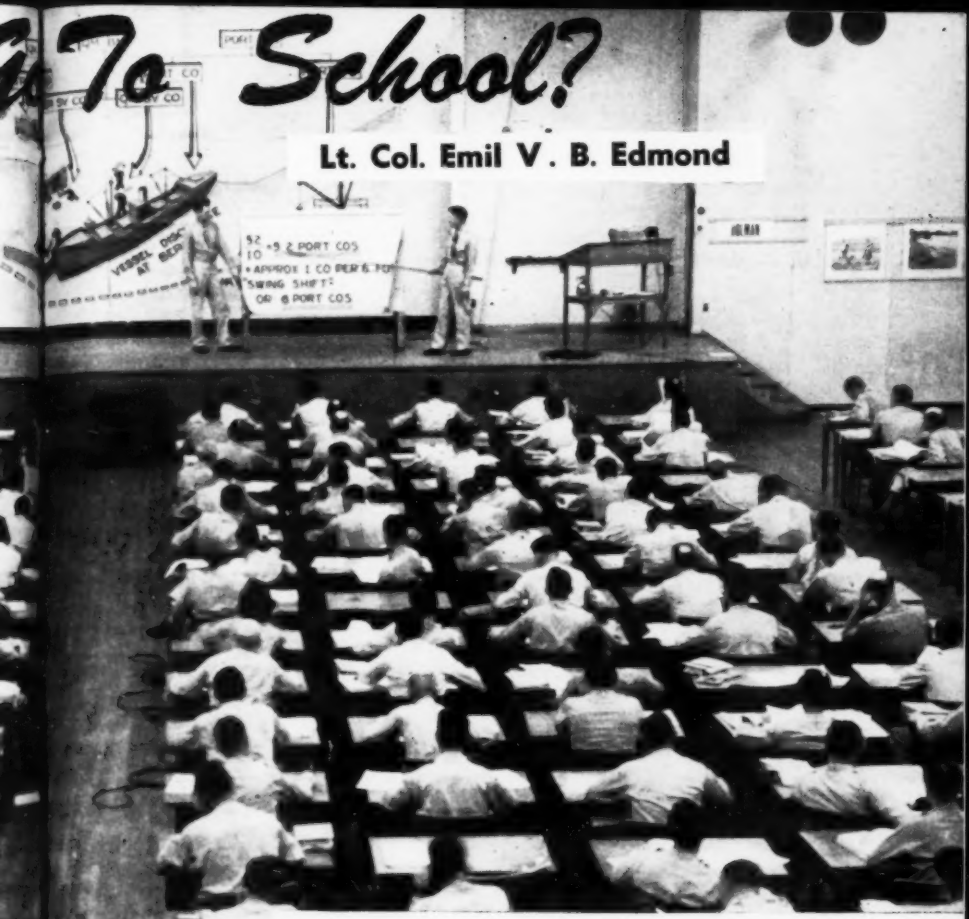
The T/O&E change has also authorized promotion of one of the three Pfc's in the squad to corporal.

The Office of the Chief of Army Field Forces has designated the numbers five and six men in the squad as the BAR gunners.

Will I

To School?

Lt. Col. Emil V. B. Edmond



WHEN CAN I expect to attend the Advanced Course at Benning? Am I too old to attend the Command and General Staff College? How many years service must I have before I'm eligible to attend the Armed Forces Staff College? Must I have credit for the Armed Forces Staff College before I'm considered for the Army War College? What are the requirements for attending the Army War College?

Have you ever asked one of these questions — or maybe a similar one? If so, and you still don't have

the answer, I hope you'll find it here. The purpose of this article is to answer as many of these questions as an explanation of the Educational System for Officers permits.

Have you ever wondered why you should attend a service school at all? Sure you have! You're probably serving in an assignment commensurate with your rank and experience and feel that you've no immediate need for service school attendance. This may be true; but if you feel this way, you're not aware of the real reason for attending school. You're sent to a service school primarily to prepare for assignments that you'll more than likely be required to fill in event of complete mobilization. The comparatively small Army of today must have a well-trained officer corps so that it can expand to a force many times its size without undue difficulty or loss of effectiveness.

To provide this highly trained nucleus, we have colonels attending the National War College and the Army War College in preparation for assignments normally filled by general officers. This is quite reasonable when we realize that General Eisenhower rose from the rank of lieutenant colonel to that of a four-star general in a matter of something like two years. Also, we have first lieutenants with five years' service attending the Advanced Infantry Officers Course to prepare them for command of battalions and regiments. Again this is appropriate when we recall that during World War II, many officers with but three and four years' service commanded battalions; in a few cases, some with but five and six years' service commanded regiments. This will happen again in an all-out war.

Thus, by phasing its career officers through the various service schools, the Army increases its capability for expansion. You should look at service school attendance with an eye to the future, as well as immediate utilization.

In 1949 the Department of the Army recognized the need for an efficient and uniform program of military education for the career officer. It appointed a board of officers to develop one. This board, after careful study, submitted its report which was approved in the latter part of 1949. This report, Report of the Department of the Army Board on Educational System for Officers (better known as the "Eddy Report" in honor of Lieutenant General Eddy — its senior member), created the Educational System for Officers used today. It clearly defines the relationship between the various service schools and colleges.

"That's all well and good," you say. "But where do I fit into the system?" Well, let's see.

The School Chain

If you're a brand new officer and received your commission through a means other than OCS, you may attend the Associate Infantry Company Officer Course on temporary duty (TDY) en route to your first station. (The OCS graduate is excluded since he has just completed a course at Benning.) This applies whether you're a regular or nonregular officer. However, since the capacities at these classes are limited, your attendance may be de-

layed until a space is available for you. If this happens, you'll be sent at the earliest opportunity after reporting for duty.

However, this isn't the way it was planned by the "Eddy Board." The Educational System for Officers, as approved, requires that all newly commissioned Infantry officers be assigned directly to troop duty, and then attend a full length company officer course at Benning sometime after their second year of service and before completion of their fifth year. With the outbreak of hostilities in Korea, many newly commissioned officers were needed immediately in combat assignments. This need resulted in the present system.

Associate Infantry Officer Course

In the switchover, many newly commissioned officers entering the service during the summer of 1950 were sent directly to combat units without attending an Associate Infantry Company Officer Course. At this writing, however, most of these have now attended an Associate Infantry Company Officer Course.

So, you can expect an Associate Company Officer Course during your first year of service unless you were commissioned through OCS. This system will more than likely continue throughout the present emergency. However, should we again revert to a peacetime program, it's anticipated that the applicable portion of the "Eddy Report" will be placed in effect. If this does happen, the civilian component officer on extended active duty will continue to attend an associate course (15 weeks) while the regular officer attends a full length course on this level.

Infantry Officer Advanced Course

After you've attended a Company Officer Course and completed five years promotion list service, you're eligible for the Infantry Officer Advanced Course at Fort Benning. Attendance is controlled by the Department of the Army and all regulars must attend unless they have credit for the course. According to the Educational System, you should attend this course before completing eight years' service. At present, this is not possible because of a comparatively large backlog of older officers, from the point of service. This backlog is being cleared up rapidly. Maximum age for attendance is forty years.

"What's this credit for attendance?" you ask. Okay, let's take time out to clear this up.

Constructive Credit

In 1947 the War Department authorized the awarding of constructive credit for service school attendance. Credit was awarded on the basis of duties performed during World War II. Such action was necessary since the normal program of service school attendance was interrupted by the war. Short courses were conducted at the service schools, but these were attended only with approval of the unit commander. As a result, many highly qualified officers did not have an opportunity to attend simply because they were considered "essential" by their commanders.

No authority now exists for awarding such credit, nor is it contemplated any will be established as there has been no curtailment in service school attendance caused by the Korean War. In fact, the officer in Korea is available for

school sooner than the officer in other overseas theaters because the tour there is generally shorter. And rightfully so! When an officer in Korea is selected for school, his availability is requested if he has been there for the minimum time in which it's possible to accumulate the required number of points for rotation.

Command and General Staff College

If you've completed eight years promotion list service and have credit for the Advanced Course at Benning, your next school is the Command and General Staff College at Fort Leavenworth. However, not all officers will go to this course since the yearly quota is not sufficiently large. Attendance is by selection, and those with the best records attend. It isn't necessary to request consideration for attendance — if you're eligible, you'll be considered, regardless of your assignment.

How long are you eligible for the Command and General Staff College? You're eligible until selected to attend, or until you complete fifteen years promotion list service. There's a maximum age restriction of forty years. This means that if you reach your forty-first birthday prior to the start of a course, you're not eligible to attend that course. (See Figure 1)

It's probably not news to you that not all officers will attend Leavenworth. What you'd like to know, however, is how many officers will be selected to attend. This question can be answered in general terms only since the total number of eligibles changes from year to year. Based on our present yearly quota and the number of officers now eligible, it is estimated that approximately six out of ten Infantry officers will attend. But if the Infantry quota continues at 183 with no increase, this percentage will gradually decrease until it eventually reaches the point where only approximately four out of ten Infantry officers will go. The last statement is based on an estimated average yearly intake of 500 Infantry officers into the Regular Army.

Armed Forces Staff College

If you have credit for the Command and General Staff College and ten years promotion list service, you've reached the stage where competition for further schooling really gets rough. You're now eligible for the Armed Forces Staff College. This is a joint college that is also attended by officers of the Air Force and Navy. There's no maximum age for attendance, but you're no longer eligible after the completion of twenty-one years' promotion list service.

The Infantry has a quota of twenty-one officers for each class at the Armed Forces Staff College; two classes are conducted during each fiscal year. Again attendance is by selection, and all eligible officers are considered. It is estimated that only one out of every five Infantry officers will be selected for the Armed Forces Staff College.

Army War College

The next school in the chain is the Army War College, the highest level Army service school. If you

QUALIFICATIONS FOR INQUIRY MILITARY EDUCATION

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Army War College

The next school in the chain is the Army War College, the highest level Army service school. If you

QUALIFICATIONS FOR HIGHER MILITARY EDUCATION

SCHOOL	GRADUATE OF OR HAVE CONSTRUCTIVE CREDIT FOR	YEARS OF PROMOTION LIST SERVICE		MAXIMUM AGE LIMIT	YEARLY QUOTA FOR INFANTRY
		AT LEAST	BUT NOT MORE THAN		
INFANTRY SCHOOL (INFANTRY OFFICER ADVANCED COURSE)	COMPANY OFFICER COURSE	5	8 (NOT STRICTLY ADHERED TO BECAUSE OF BACKLOG)	40	400
COMMAND AND GENERAL STAFF COLLEGE	INFANTRY OFFICERS ADVANCED COURSE	8	15	40	183 (VARIES)
ARMED FORCES STAFF COLLEGE	COMMAND AND GENERAL STAFF COLLEGE	10	21	NONE	42
ARMY WAR COLLEGE	ARMED FORCES STAFF COLLEGE OR COMMAND AND GENERAL STAFF COLLEGE	13	21	45	63
NATIONAL WAR COLLEGE	ARMY WAR COLLEGE OR ARMED FORCES STAFF COLLEGE	18	25	NONE	14
INDUSTRIAL COLLEGE OF THE ARMED FORCES	ARMY WAR COLLEGE OR ARMED FORCES STAFF COLLEGE	18	25	NONE	3

ADDITIONAL GENERAL QUALIFICATIONS FOR ALL OF THE SCHOOLS;

1. BE CHOSEN FROM THE MOST HIGHLY QUALIFIED OFFICERS OTHERWISE ELIGIBLE.
2. BE PHYSICALLY QUALIFIED FOR GENERAL SERVICE.
3. HAVE INDICATED BY ACTUAL PERFORMANCE OF DUTY, A POTENTIALITY FOR HIGH COMMAND AND STAFF POSITIONS.

Figure 1. Qualification for higher military education —Cpl Jack Heron

have thirteen years promotion list service, are a graduate of or have constructive credit for the Command and General Staff College, have not completed twenty-one years' service and do not exceed the age limit, you are eligible to attend. The Army War College has a maximum age limit restriction for attendance of forty-five years. You're not eligible to attend a class if you reach your forty-sixth birthday before the class begins. This holds true although you may still be eligible with regard to service.

The Infantry has a quota of sixty-three officers for each class at the Army War College. Again, attendance is by selection since it's not physically possible to permit all officers to attend. The number of officers presently eligible indicates that only one out of five officers can attend. If you add this figure to the same one given for the Armed Forces Staff College, on the surface it appears that a total of two out of five officers will attend either of the two schools. This is not completely true since selections are made on the basis of sending those officers "best qualified." This results in some officers being selected to attend both. Each time this happens, one less officer receives military schooling above the Command and General Staff College level.

Joint Colleges

Each year a few Army officers are selected to attend the National War College and the Industrial College. These schools, like the Armed Forces Staff College, are joint.

While the specialized knowledge acquired at the National War College and Industrial College is needed by the Department of the Army, attendance at either of these two colleges is not given more weight for promotion purposes (or selection for high level position) than attendance at the Army War College.

Method of Selection

The Infantry quotas at the Command and General Staff College and higher level schools do not permit all eligible officers to attend. This requires that there be some method of selection for determining which ones are to attend. Without a doubt, you're interested in the method used to select Infantry officers. And you should be.

In general terms the method used is as follows: The records of all eligible officers are reviewed to select those with the best military records. This is done on a comparative basis — your record is compared with the records of all other eligible officers.

To better equalize the competition eligible officers are arranged in groups according to their promotion list service. (This does not hold true for the officer who received his Regular Army commission through a competitive tour. His total active commissioned service is used since using only his promotion list service would many times result in his being too old to attend a course shortly after becoming eligible.) The resulting groups are called basic year groups. A basic year group includes those officers whose basic date of commission in the Regular Army — start of promotion list service — falls between 1 September of one

year and 31 August of the following year. The resulting group is given the year designation of the higher of the two years. For example, if your basic date of commission in the Regular Army is 7 December 1941, you are in basic year group 1942.

An order of merit is made for each basic year group after a comparative analysis of the records of all eligible officers in the group. The officer in the group with the best military record is placed at the top; the one with the next best, second, etc. The officers to attend the course for which the selection is being made are then taken from the top of the order of merit for each year group. When deciding how many officers will attend from each year group, consideration is given to the number in the group, the years of eligibility remaining, and the quota for the class.

Selections of officers to attend a service school are made without regard to availability or geographical location. This simply means that when you're eligible to attend you'll be considered for selection regardless of your assignment.

The final approved list for any selective school includes three times the number of officers who can attend on the branch quota. The first group of names, in a quantity equal to the quota, are principals; the second group — again a number equal to the quota — are first alternates; and the third group are second alternates. An officer's exact position on any selective school list may not be disclosed.

The quota for the course is filled from the approved "three times" list. The availability of all principals is checked first. If any of these are not available to attend, the availability of alternates is checked in sequence until the quota is filled. When a principal is not available to attend, he is deferred to a later class. His attendance at the next class for which he's available is assured provided his military record remains up to the standard desired for attendance. The same does not hold true for alternates since they're on the list only as possible substitutes for principals who are not available to attend. The alternate, who does not attend the class for which he's selected as an alternate, must compete again for the next class.

Recent changes in regulations place two other restrictions on service school attendance. Although you've been selected, you may not attend unless you've completed a normal non-student tour since your last service school. (This applies only to schools above the Command and General Staff College and may be waived if it will result in the officer becoming ineligible for the course.) In addition, you must have been on duty at your present station for at least one year before the start of the course. However, you're still considered for selection in spite of the fact these restrictions may delay your attendance.

It's not feasible to try to predict when you, or any other officer, may attend a selective school. Records change yearly, and the competition is keen. Prior to the final approval of a school list, no information may be given other than whether you are, or are not, eligible to attend. If you're eligible, you'll be consid-

ered; if selected, you'll receive Department of the Army orders.

Civilian Component Officers

Thus far, except in the case of the Associate Infantry Company Officer Course, we've been concerned with only the "long" courses at the service schools. The capacities at these courses do not permit all Infantry Officers to attend.

"Well, what about my education?" you rightfully ask if you're a career reservist.

There are fifteen-week associate courses at Benning on both the company and advanced officer level. These are shortened versions of the "long" courses and are conducted primarily for the civilian component officer. The same basic instruction is presented in both courses.

These associate courses are attended on a TDY basis. You may attend TDY from your unit or TDY en route to a new station. If you're not due for a change of station and desire to attend one of these courses, you should choose the one you want to attend and apply through channels to Office, Chief Army Field Forces. If you're due for a change of station soon and wish to attend an associate course, you may write direct to the Infantry Branch, Career Management Division, The Pentagon, and request consideration for attendance, TDY en route to your new assignment. In most cases this can be arranged. The limiting factors are that you meet the minimum qualifications for attendance as outlined in the Army School Catalog, and that the date of your change of station coincides favorably with the start of a course of instruction.

The only selective college presently offering courses for the civilian component officer is the Command and General Staff College at Fort Leavenworth. Two associate courses are conducted there each fiscal year. Both are attended on a TDY basis. In addition, a few reserve component officers not on active duty are selected annually, by Chief Army Field Forces, to attend the Army War College and regular course at Command and General Staff College.

First, there's the Associate Command and General Staff Officer Course which lasts approximately thirteen weeks. If you desire to be considered for attendance at this course, you must apply through channels to Office Chief Army Field Forces. Eligibility requirements are the same as for the "long" course, except that the maximum age is forty-four years instead of forty. Attendance is not automatic — you must have a good military record in addition to meeting the eligibility requirements.

The other course scheduled each fiscal year at Leavenworth is the General Staff Officer Course which lasts eighteen weeks. To attend this course, you must be a Category III officer with between eight and nineteen years commissioned service. Other eligibility requirements are the same as for the Associate Command and General Staff Officer Course.

Selections for the General Staff Officer Course are made by the Department of the Army. No application is necessary. The records of all eligible officers are reviewed, and those with the best military records are selected to attend. At-

tendance is on a TDY basis — either en route to a new assignment or merely from the parent unit. If a permanent change of station is not involved, the Army Commander is requested to place the selected officer on orders.

The General Staff Officer Course is primarily for non-regular officers. However, a number not to exceed ten percent of the quota may be filled by regulars with fifteen to nineteen years' service, but who have not attended the "long" course.

This has been only a brief discussion of the schools that the civilian component officer may attend. Department of the Army Pamphlet 20-21, The Army School Catalog, explains in detail the numerous courses available for both the regular and non-regular. If you're interested in attending a particular course, consulting this catalog should give the desired information.

Remember, if you're a civilian component officer, you must apply for any school you want to attend, except the General Staff Officer Course at Fort Leavenworth. You should try to keep your military education in the associate courses at the same level as your contemporary in the Regular Army.

Foreign Schools

Each year the Army is invited to send a few officers to the service schools of some Allied Nations. To mention a few, there are Australia, Canada, England, France, India, and Pakistan. Quotas are small and are rotated between the various branches. Infantry's share generally does not exceed more than three each year.

Officers selected to attend these courses are representative of our country as well as our Army. Therefore, they're carefully selected. Those attending are expected to contribute to the instruction as well as gain knowledge.

Other Schools

Service schools are not the only schools which you — an Infantry officer — may attend. There are many others — all outlined in special regulations. For this reason, we'll not discuss them but merely mention a few. There is the Civilian Schooling Program outlined in SR 350-230-52 dated August 1952; The Language and Area Training Program explained in SR 350-380-1, dated January 1952; the Language Training under the provisions of Department of the Army Circular 45, dated June 1952. Your unit operations and training officer can assist you in obtaining these regulations, as well as other information you may need about Army schools.

* * *

On the job training is paramount, but the knowledge acquired through service school attendance will make your job easier.

If you're a Regular Army Officer, your service school attendance is monitored by the Department of the Army. Military education received at a service school will better prepare you for future assignments of greater responsibility. It will help you to do a better job in your present assignment.

If you're a civilian component officer, take stock of your military education, find out the next school you are eligible to attend, and apply for that school.

The Story Of The BAR

Lt. Gale C. Livengood

It's doubtful if Mr. Browning would recognize the modern BAR . . .

THE FIRST TRUE AUTOMATIC* WEAPON was invented by Sir Hiram Maxim in 1880. The old Maxim machine gun was a recoil operated weapon and functioned (though somewhat crudely) in a manner comparable to present day recoil operated weapons. There were other so-called automatic weapons prior to the Maxim. These, however, were hand operated, using cranks similar to the type found on an old fashioned sausage grinder or cider mill.

A gunsmith, John M. Browning, at Ogden, Utah, dreamed of a weapon that would operate automatically by utilizing the gas from ignited cartridges. This "idea" became a reality in 1889 when Browning successfully applied this principle to the Colt gun (or pistol). Almost immediately following the appearance of the Colt, an Austrian, Baron Von Odkolek, devised a gun with a gas system similar to the ones now used.

During the 1890's and in the early 20th Century, hundreds of attempts were made to develop better machine guns, semi-automatic rifles, and automatic pistols. Most of these were variations which used the gas or recoil principle of operation. Many were novel, such as one whose operation was based on the movement of the primer in the cartridge case.

In 1909 the United States Army adopted the Benet-Mercie gun, officially known as the Automatic Machine Rifle, Caliber 30, M1909, which remained standard until 1916. The weapon was strip fed; the barrel group was complicated, having fifty operating parts. Each machine gun platoon had two of these weapons which, together with their spare parts, accessories, and tools, was a load for a platoon of soldiers and six mules.

When World War I broke out, automatic weapons suddenly became the keystone around which tactics were being evolved. The war brought about a race to increase fire power by means of machine guns and automatic rifles. In 1917 the American Expeditionary force had too few automatic (machine) rifles, so the French Chauchat automatic rifle, 8mm, M1915, was adopted by the Army. In 1918 it was modified to fire caliber .30 ammunition.

In May 1917 the Secretary of War directed that a machine gun board be established to test all the

*An automatic weapon is one which fires, ejects empty cartridge, and reloads itself when the trigger is squeezed. True automatic weapons will continue firing as long as the trigger is held down (and the ammunition holds out). The term automatic shotgun is erroneously applied to semiautomatic or self-reloading guns. As distinguished from an automatic, the semiautomatic weapon ejects the empty cartridge and reloads itself but fires only one shot each time the trigger is squeezed.

many varieties of automatic rifles and machine guns.

At this time, numerous inventors submitted machine guns and automatic rifles to the board. One of these was the same John Browning mentioned earlier. Browning, then 62 years old, submitted a water-cooled machine gun and an automatic rifle. He personally fired both weapons during the extensive tests. Despite his age he refused to become excited. He remained placid and deliberate in spite of slight irregularities during the trials, and his air of absolute confidence in his guns was justified beyond a doubt by their performance.

Since this is essentially a history of the BAR, we'll just say that both of Browning's weapons proved themselves to be infinitely superior to any weapons of their type that were tested.

The automatic rifle became known as the Browning automatic rifle, M1918. It weighed 15 pounds 8 ounces and had an effective rate of fire of 150 rounds per minute. It was, of course, the "Daddy" of the familiar BAR.

Although the rifle was simple in design and easy to manufacture, experiments to improve it continued. By the fall of 1936 an improved bipod with spiked shoes was adopted which gave stability and decreased shot dispersion.

In 1939, after several years during which eight different types of bipods, ten different butt plates, and several forearms, pistol grips, and offset stocks were tested, the Army arrived at what was considered a satisfactory BAR. This greatly modified version of Browning's automatic rifle was christened the M1918A2 and is the BAR currently issued to troops.

Here are the modifications that were made to the original Browning automatic rifle and the reasons for which they were made:

1. The bipod was moved from its 1936 position on the gas cylinder tube to the flash-hider. The barrel was then allowed to rotate at the bipod, which eliminates any canting. The bipod spikes were changed to sleds. The over-all effect of these changes was to increase stability and reduce dispersion.

2. A hole was bored in the end of the gas cylinder. This permitted a certain amount of gas to escape and made the rifle smoother and easier to fire.

3. The forearm was cut away, exposing a greater portion of the rifle to the air, which prevented it from heating up rapidly. This naturally tended to prolong the useful life of the barrel.

4. To permit the firer to better align his eye with the sight, the left side of the stock was cut away.

5. A new sight, the M1922 machine rifle sight, was added. This allowed the firer to make necessary windage adjustments.

6. The hinged butt plate was reduced to half its former length, which reduced firer fatigue by avoiding contact (and the consequent pressure) with the larger shoulder muscle.

7. A stock rest, which made it possible to lay the rifle on an FPL, was added. This change was found unsatisfactory and was later eliminated.

8. The most important changes,

however, were made in the buffer group located in the stock. These changes made the rate-reducing group organic to the buffer group and eliminated semi-automatic fire (although single shots can still be fired by proper trigger manipulation). These changes gave the rifle two cyclic rates: slow — 350 rounds per minute; fast — 550 rounds per minute. The slow cyclic rate was added to enable the firer to deliver more accurate automatic fire and give him better observation of his target. The fast cyclic rate may still be used to saturate a target quickly with fire.

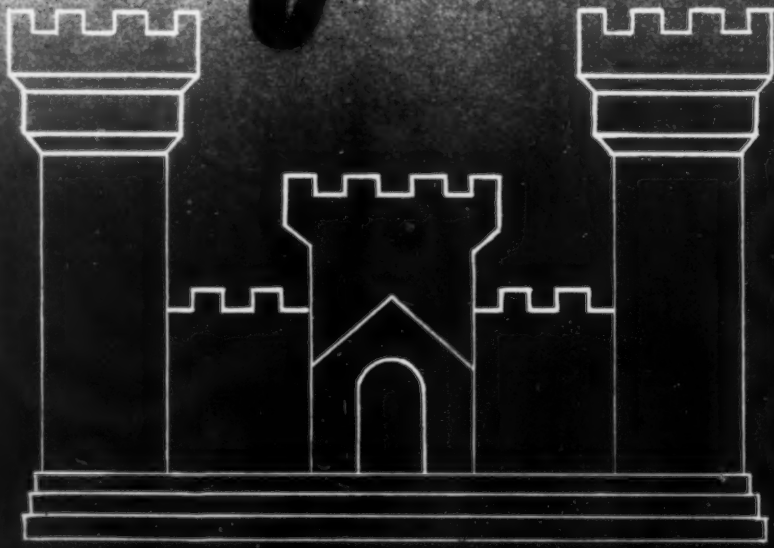
The BAR of today is the result of long years of experimentation and modification. It is doubtful if Mr. Browning would recognize his brainchild. But, to the modern Infantryman, it is a familiar and trusted friend. For he knows that the M1918A2, both in World War II and the current Korean conflict, has performed its mission of providing an accurate volume of fire in support of small Infantry units. Its mobility, fire power, and accuracy have earned for it the praise and confidence of Infantrymen. And, when an Infantryman endorses a weapon, who can quibble about its merit?

Nothing is easy in war. Mistakes are always paid for in casualties and troops are quick to sense any blunder made by their commanders.

— President Dwight D. Eisenhower

PART TIME

Infantry



LT. COL. HAROLD J. ST CLAIR, CE

What every Infantryman should know about combat Engineers

A FEW HUNDRED ENGINEERS laid down their shovels, wiped their hands on their leather breeches, and, on their own, entrenched a line that stopped a German offensive. This was the drive that, in March 1917, had shattered the British Fifth Army and threatened to wedge the Allied forces apart. A short time before, Colonel John Hodges, 6th Engineers, had been peacefully repairing a railroad miles from any scene of combat — he thought. Then the roar of combat grew louder, moved nearer. Allied stragglers, many of them wounded, drifted through the Engineer work parties with wild tales of disaster. Colonel Hodges instinctively planned, entrenched, and occupied a defensive position. Many stragglers joined him and their temporary dismay disappeared in the face of organized friendly troops — ready to fight back.

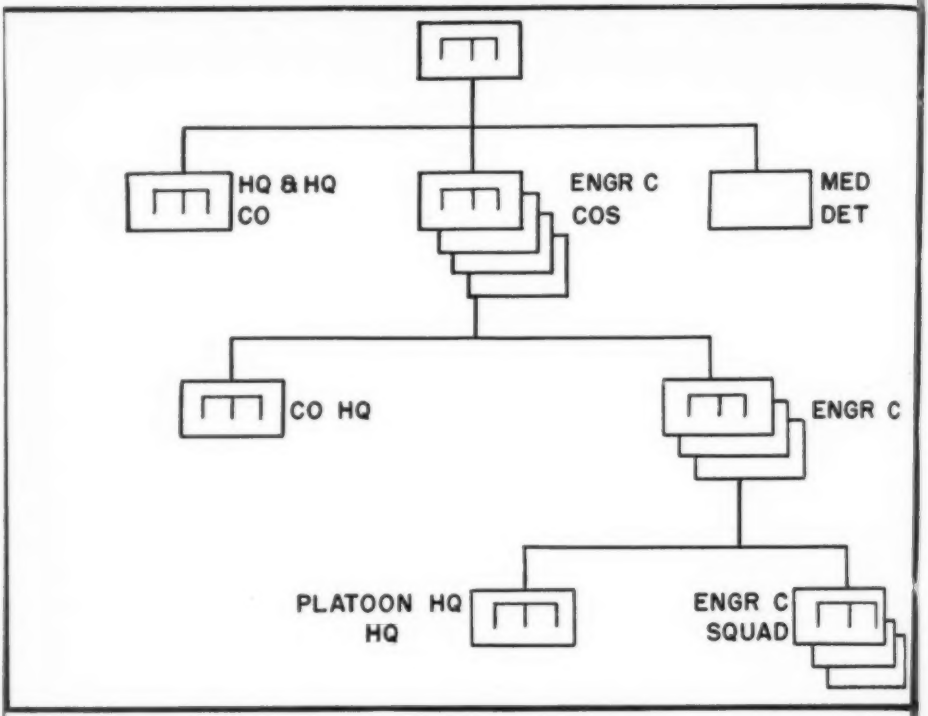
The exploiting German thrust was too weak to crack Colonel Hodge's thin line of part-time Infantrymen by frontal assault. Allied GHQ reacted quickly — but before artillery support and flanking elements could be brought up, the breakthrough was stopped. The part-time Infantrymen in this case were from the 6th Engineer Regiment, which hung another battle streamer on its guidon.

Normally, Engineer participation in combat as Infantry is less sensationally timed and deserves less notice in weighing results. But "we did it once, we can do it again" is inculcated deeply into every combat Engineer's training.

All that is definitely to the good. But modern warfare has become so complicated that guts and rifles alone are poor substitutes for today's complex battle units. Isn't it about time Engineers sought Infantry evaluation and constructive criticism of their plans for serving as substitute Infantrymen? Infantrymen should be made aware of the fact that a combat Engineer battalion differs greatly in organization, training, equipment and basic mission from an Infantry battalion. These differences necessitate a great deal of prior planning to get an Engineer battalion ready for Infantry action.

Reorganization Plan

The key to successful performance of a Doughboy mission by a divisional "chain gang," as the Engineer combat battalion is often called, is an SOP or "Plan for Reorganization for Combat." (Appendix III, FM 5-132 serves as a guide for this plan.) Every Engineer combat battalion should have such a plan. The plan makes it possible for a battalion commander to simply order, "Fall in as Infantry."



— Cpl Vic Bothman

Figure 1. Engineer Battalion

At this command a group of well qualified expert Infantrymen — minus only their Combat Infantry Badges — should fall to. This is, of course, the ideal rather than the usual. Even with a perfect reorganization plan, certain basic differences in training, organization, and equipment between an Infantry battalion and an Engineer combat battalion make the ideal difficult to approach.

Modern Minute Men

The basic thesis for all reorganization plans is that the Infantry battalion is the finest combat organization that our Army's can devise — so let's make our Engineer battalion look and act as much like an Infantry battalion as possible.

The most important element of this plan is one of MOS conversion (actually of training each man to carry two MOS's.) Pioneers, demolition men, carpenters, and bulldozer operators must become modern minute men, prepared to act as riflemen, machine gunners, wire men, and grenadiers. Everyone in the battalion must be trained to

perform efficiently in a secondary job, foreign to his assignment. This is not easy. Many Engineer specialist MOS's require months of training.

Training

This dual training and rapid conversion mission applies to the combat Engineers found at corps and army as well as division level. Remember the 36th Engineer Regiment (the group organization has now replaced the regiment), which won the admiration and respect of the Infantrymen who watched it move supplies ashore until the slender beachhead at Salerno could be made secure? At Anzio this unit was assigned an Infantry mission. It held a section of the beachhead perimeter for approximately 50 days without relief. In demonstrating that Engineers fight as well as build, the regiment sustained more than twice its original strength in casualties. The training problem presented by this dual mission has caused many grey hairs and not a few sighs for the easier tasks of slide rule duty.

Actually, training for an Infantry mission requires a higher degree of proficiency than for an Engineer mission. The reason is simple. Incomplete Engineer training will result in slower execution of missions and require closer supervision. On the other hand, incomplete Infantry training, both individual and unit, can result in large numbers of casualties and failure to accomplish the assigned mission.

Organizational Comparison

The major difference between the Engineer and Infantry battalions, a serious Engineer organization limitation, lies in the Engineers' lack of a weapons element in each echelon of the battalion. A typical reorganization plan will provide for the organization of 3 rifle squads and a weapons squad of two light machine guns and a 3.5-inch rocket launcher in each platoon in the battalion. This is the nearest that the Engineer organization shown in Figure 1 can approach the Infantry organization shown in Figure 2 without an augmentation of either equipment or men.

Four Companies

Another significant difference is the fourth lettered company in the Engineer battalion. However, don't start trying to decide whether to use "three up and one back" or "two up and two back," for you'll probably have to be content with the familiar "two up and one back."* It's an unwise commander who lets all four Engineer companies perform as Infantry. There is still essential Engineer work to be done. That's one reason why the divisional battalion has four working companies. A more basic reason is the need to provide simultaneous support for the three Infantry regiments and the division as a whole. It is difficult to visualize a situation where no Engineer work is required to accomplish a division's mission. Of course, we can't say that such a situation will never occur, because

*Read "Don't Forget the Fundamentals," by the Chief of Staff, Department of the Army, General J. Lawton Collins, which appeared in the January 1953 issue of the INFANTRY SCHOOL QUARTERLY.

it is said that in the North African landing at Port Lyautey there were no mines, pillboxes or obstacles encountered on the beach. Because of the absence of such obstacles, the 9th Infantry Division's Engineers became a reserve riflemen. This fighting reserve of combat Engineers participated in a successful counterattack against the assaulting enemy.

Rear Echelon Overhead

An organizational comparison would be incomplete without considering the number of men available to the two units. The Engineer battalion has a slight edge with 961 men as compared to the Infantry battalion's 922. An analysis of the Engineer battalion reveals, however, that it can't put nearly as many men on the line as an Infantry battalion. At least it can't as long as the fourth company is kept on essential Engineer work for the division Engineer service. Also, supply functions must be continued, and the battalion's rear echelon must be provided with the necessary mobility and security. We must participate using some of the Engineer's rear echelon

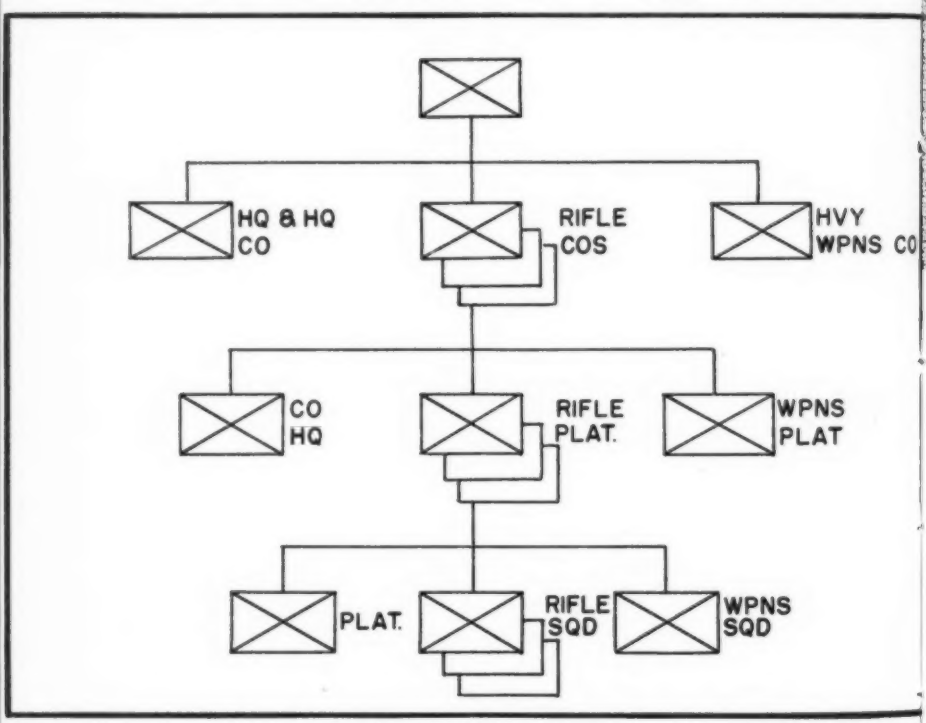


Figure 2. Infantry Battalion — *Cpl Vic Bothman*

WEAPONS	INFANTRY BATTALION	ENGINEER BATTALION
RIFLE, CAL. 30	483	729
CARBINE, CAL. 30	251	138
MACHINE GUN, CAL. 30, HEAVY	4	0
MACHINE GUN, CAL. 30, LIGHT	13	26
MACHINE GUN, CAL. 50	8	28
BAZOOKA (3.5 & 2.36)	20	40
MORTAR, 60 MM	9	0
MORTAR, 81 MM	4	0
PISTOL, CAL. 45	130	30
RIFLE, CAL. 30, SNIPER	27	0
BAR, CAL. 30	45	0
RECOILLESS RIFLE, 57 MM	9	0
RECOILLESS RIFLE, 75 MM	4	0
SUBMACHINE GUN, CAL. 45	0	65

HESTER CAFFEY

Figure 3. Weapons Comparison — Infantry Battalion vs Engineer Combat Battalion Divisional

overhead to provide additional wire crews, litter bearers and, in some instances, mortar crews.

In an Engineer unit, just as in an Infantry unit, it takes something more than men, good plans, good equipment, and adequate training time to accomplish a mission. Personal leadership by officers and NCO's, unit esprit, and individual confidence in ability to handle the job are essential.

Fire Power Comparison

An Engineer battalion has certain limitations in weapons and equipment. Proper reorganization planning can reduce these limitations, but only adequate support available from Infantry sources can eliminate them. Perhaps a fire power comparison will most effectively emphasize these limitations, for the fire power of the two battalions will most accurately reflect relative combat capabilities. Figure 3 lists the organic weapons of each battalion. A hasty glance seems to indicate that the Engineer battalion could hold its own with an Infantry battalion. Even at platoon level (Figure 4), fire power equality appears to exist. This

WEAPONS	RIFLE PLATOON	ENGINEER PLATOON
RIFLE, CAL. 30	28	38
CARBINE CAL. 30	3	3
MACHINE GUN, CAL. 30, LIGHT	2	2
PISTOL CAL. 45	7	0
ROCKET LAUNCHER	1	3
BAR CAL. 30	3	0
RIFLE, CAL. 30 SNIPER	3	0
MACHINE GUN, CAL. 50	0	1
SUBMACHINE GUN, CAL. 45	0	1

VIC BOTHMER

Figure 4. Weapons Comparison — Infantry Rifle Platoon vs Engineer Combat Platoon

could be another instance of "statistics can prove anything" if the subject of fire power were permitted to rest at this point. Let's look at the remainder of the fire power picture before drawing any conclusions.

Supporting Fires

The practical Engineer, like the Infantryman, must know where his artillery fire support is to come from. We encounter a good many problems in organizing the ground with a 7 series book* and an Engineer battalion's organization and equipment, but the granddaddy of all such problems is that of providing supporting fires. An Engineer battalion has no 60-mm or 81-mm mortars, or 57, 75, or 105-mm recoilless rifles. Further, nothing in the battalion can be considered a substitute unless you want to regard the 3.5-inch bazooka as a

*The term "a 7 series book" refers to Field Manuals 7-10, 7-20, 7-40 and other Infantry field manuals.

partial substitute for the 57 or 75 recoilless rifles.

Close Support Weapons

Engineers augment their supply of close support weapons by requisition and have been known to capture the weapons they need. During the Normandy campaign, the 315th Engineer Combat Battalion, organic to the 90th Infantry Division, captured several German mortars and a good supply of ammunition. With men from H and S Companies led by the reconnaissance officer, a mortar platoon was organized and trained to use the captured mortars. This makeshift organization fought effectively in several subsequent operations. However, crews and weapons are seldom available when needed — in fact, it's a lucky Engineer battalion that has anyone qualified to train weapon crews. Neighborly Infantry units have frequently lent instructors for this purpose. Under existing T/O&E's and Army Training Programs, an Engineer battalion can't be expected to maintain trained mortar and recoilless rifle crews, so we must resign ourselves to the fact that Engineers just won't have "real Infantry" close fire support.

Passing the Buck

The fire support picture does not seem so bleak when we look at the heavier weapons. If an Engineer battalion is attached to an Infantry regiment, which is considered both normal and desirable, the responsibility for providing fire support falls on the regimental commander. The question every Engineer asks is "Will we get all of the 4.2-inch mortar artillery support normally given an Infantry battalion?" Engineers, when employed in an Infantry role, really need this support (and more) to compensate for deficiencies already discussed. An Engineer's knowledge of artillery fire support planning is sketchy at best. The Artillery instructor at The Engineer School says that he can't turn out very many expert Artillerymen in the 6 hours of instruction given the Engineer Officer Advanced Class. Assignment of the most competent forward observers and liaison officers to the Engineers will pay dividends.

Antitank Defense

Necessity and ingenuity often call forth strange innovations in modern warfare. Armored bulldozers, for instance, have been used as antitank weapons and in other less orthodox ways.

The Japanese were masters at individual protection. In the battle for Leyte many of the enemy were in covered foxholes, some with armored lids. An armored bulldozer aided in cleaning up these dug-in Japanese soldiers. As the bulldozer blade uncovered each foxhole, Capt James F. Carruth, of the 302nd Engineer Battalion, leaned from the turret and shot the occupants. This, you will admit, does not represent conventional employment of the tank dozer. However, such cases may have been the determining factor when postwar T/O&E's authorized an assault platoon with five tank dozers for each divisional Engineer Combat Battalion. Another important factor was undoubtedly the

successful use of AVRES* by the British Royal Engineers since 1943.

Until recently, Engineers regarded these tank dozers, or assault vehicles, as a means of providing high velocity, long range AT fire such as that provided Infantry units by a regiment's organic tanks. Due to equipment difficulties the assault platoon will be deleted, temporarily we hope, from a new T/O&E soon to be published. At the present time Engineers must rely upon the sagacity and unselfishness of the Infantry regimental commander. Engineers hope that he will assign tanks to provide antitank protection to his attached Engineer battalion on the same basis that he provides such protection for his Infantry battalion; for example, one tank platoon per battalion on the MLR.

Communications

Actually, organic Engineer communications can do a creditable job in combat by overcoming one basic deficiency. Wire communications must be supplemented; additional wire crews must be organized and additional wire, telephones and switchboards obtained. Sufficient personnel for such crews can be obtained from company and battalion overhead. The reorganization plan must designate the men who will constitute these crews. Organic radios of the Engineer combat battalion should be adequate for any normal Infantry mission.

Medical Support

The medical detachment of an Engineer battalion is unable to provide adequate support for Infantry combat action. Additional litter bearers must be obtained from company and battalion overhead. Fortunately, the overhead is adequate to fulfill this requirement if it is not used to man weapons obtained from one of the previously mentioned sources.

Transport

Every mud-sloshing Infantryman who has been splashed by the pick and shovel boys as they churn past in their dump trucks realize that an Engineer battalion has transportation. Just how much may amaze some people. The divisional Engineer combat battalion actually has about 250 vehicles and pieces of heavy equipment. The bulk of this equipment cannot be used in Infantry-type combat. In fact, this transportation greatly complicates the problem of preparing for Infantry action.

The security and mobility of all excess transport and equipment must be provided for. This can be accomplished through the use of a reorganization plan. This plan will specify which items are to go to the rear echelon, who will drive the equipment, and what security is to be provided. Needless to say, the transportation required to perform an Infantry mission is adequate.

Emergency!

When and *How* does an Engineer battalion receive an Infantry mission? In World War I the mission of the Pioneer Infantry Regiment

*AVRES: Assault Vehicle Royal Engineers. This is the British counterpart of our EAV, Engineer Assault Vehicle.

(there were 24 in the American Expeditionary Force) was to assist other arms. By that we mean the construction of roads and railways in advanced areas. However, they were organized, armed, and trained to "fight in an emergency." This capability is also required by current doctrine. Current doctrine states that Engineer units should be used as Infantry only after carefully weighing the value of the Infantry mission against the resulting decrease in the Engineer support which is so essential to the overall success of the division.

These words "emergency" and "essential" leave a lot to individual judgment. How can you determine what an emergency is and what work is essential? An experienced division Engineer, thoroughly indoctrinated with the need for Engineer work, will seldom concede that an emergency exists which warrants the use of his Engineers as Infantry. In fact, he will probably concentrate on avoiding commitment of his battalion as Infantry for several very practical reasons. Good carpenters, demolition men and bulldozer operators are very hard to come by, and secondly certain Engineer work is important to the accomplishment of the division's mission. This work, to be effective, must be continuous.

Defense Only

We must conclude that if the division Engineer does a reasonably good job of *advising*, his troops will be used as Infantry only when the situation is really critical; for example, when the division is on the defensive and is having some difficulty in holding its own. Thus it is deduced that an Engineer battalion may be used as Infantry in the defense, but only infrequently in the attack.

This should be interpreted as implying that the Engineers should never be used in the attack — as a matter of fact, accomplishment of the Engineer mission may require that they attack. The 108th Engineers would not have succeeded in clearing the route for Infantry of the 33d Infantry Division in the Leyte Campaign had they failed to attack. Japs had planted mines and retired to concealed positions to defend them. Engineers with the mission of clearing the route were unsuccessful in their first attempt to remove the mines. The Engineer officer was faced with a real problem. Should he wait for Infantry assistance or should he attack and drive the Japs off? A delay seemed unwarranted. With the aid of a captured Japanese mortar the Engineers attacked. They drove out the minefield defenders, removed the mines, and thus accomplished their mission.

Although deliberately planned assaults by Engineers may be few, the occasions for small unit actions will be frequent. In providing local security for a work site, small Engineer units will often be compelled to fight without warning or time to use their reorganization plans. It is likely that in future warfare this will be the most common type of Infantry action engaged in by Engineers.

FPL and MLR

Several difficulties arise when trying to dispose automatic

weapons of an Engineer battalion on the MLR. For example, Infantrymen like to employ machine guns in pairs for final protective line fire. An Engineer platoon, however, has only two light machine guns and no supplementary help from a heavy weapons company. How can the platoon leader use them in pairs and still get flanking, grazing and interlocking fire along the FPL in front of each of his neighboring platoons? He can't — for it would require more than two guns. Of course, machine guns from support platoons or from the platoons of the reserve company could be placed on the MLR, but this has several disadvantages. It weakens the unit from which the weapon is taken and it requires the crew to work with a strange platoon. As another alternative, .50 caliber machine guns could be used on the MLR as each platoon has one. However, if the fifties are used in this manner, the rear echelon is denied antiaircraft fire. Another problem is that a ground mount is not authorized for the fifty.

Mutual Respect

In spite of the fact that certain Infantry techniques have to be altered slightly when used by combat Engineers, you can expect Engineers to perform an Infantry job in a creditable manner. We have our problems and our limitations. Only a few of them, however, can't be completely or partially solved by understanding assistance from Infantrymen. Remember we Engineers are trained to be only part-time Infantrymen.

Leadership in a democratic Army means firmness, not harshness; understanding, not weakness; justice, not license; humaneness, not intolerance; generosity, not selfishness; pride, not egotism.

— General of the Army Omar N. Bradley

A Sergeant Reports

SFC Acreman reports on a new method of using the M-10 plotting board which he devised while in Korea. This method, says the sergeant, permits 4.2 mortars to fire directly from map data. Whether or not you agree with his method is immaterial — the important thing is that our army produces not only fighters, but thinkers as well. And the article, we're certain you'll agree, does illustrate the resourcefulness of soldiers of the U. S. Army in solving problems that arise in combat areas.

I WENT TO KOREA with the 15th Infantry Regiment as a computer in the Heavy Mortar Company. As a computer I became well acquainted with the M-10 plotting board and the type fires requested by forward observers.

I feel safe in saying that 90% of the fire missions requested were called in using map grid coordinates. The reason for calling in most fire missions using map grid coordinates was because the many mountains in Korea make it difficult to adjust on a target by shifting from a base point. Many times if the forward observer moved two or three hundred yards the base point became invisible. At other times he might locate a target across a mountain, or maybe two mountains, from the base point.

Much of my time in the Fire Direction Center was spent getting azimuths and ranges from the map and transferring them to the M-10 plotting board. There are several occasions when this method was not too accurate or effective. One of the reasons for this inaccuracy was that most maps carried in combat are folded. When we lay a protractor on a map that has been folded it is hard to obtain the correct azimuth to a given location. When a target is moving fast or digging in, you want to fire fast. It takes time to convert this information into fire data. Sometimes by the time the data reaches the mortar crew and the mortar fires, the enemy has vanished or is well dug in.

Review of Method Currently Used

This seems to me to be a good place to review the current method in order that the reader can better understand my method.

The first thing we do is rotate

the M-10 plotting board until the azimuth on which the mortars are laid appears over the index mark. This azimuth becomes deflection zero. To the left of the index (0 deflection) will be 100, 200, 300, etc., and to the right will be 3100, 3000, 2900, etc.

The next thing that is done is to drop below the pivot point 1000 yards or more and plot in the mortar position. The board is now set up and ready, using the current method.

Now every time the forward observer calls in for a fire mission using grid coordinates, you have to refer to the map. You must use the protractor to get the azimuth off the map and a range scale to get the range from the map. These items must be plotted on the M-10 plotting board before you can get any firing data for the mortars.

My method simplifies the entire procedure, but keep reading and I'll explain it in detail. First, however, let me continue with the story of how it came into being.

We were under company control. We used the grid sheet according to the artillery method. We adjusted on a base point and made all corrections in the Fire Direction Center. We could easily fire map data. However, most of the time we were under platoon control, attached to a battalion. Due to the disadvantages of lugging around a plane table, grid sheets, deflection fans, and other equipment, we used the M-10 plotting board. One feature of the M-10 board is that rain won't ruin it — as it will some of the other equipment.

My regiment was placed in Corps Reserve and stayed there for two weeks. At that time we received some replacements in the company from the U. S. Two of them were assigned to FDC and it was my job to teach them FDC procedure. About the second or third day of teaching them I thought there must be some way of using the M-10 plotting board by the Field Artillery method. Within a short time I had a method that, for me at least, proved to be far better than any other method I had ever used. I taught it to all of the men in the Fire Direction Center.

The Acreman Method*

Let me explain the method I used to teach these men.

First we orient the M-10 plotting board until the 0 or 6400 of the outer scale is over the index mark. Next you pick out a square on the board to plot the mortar position in. The correct procedure is to pick a square that affords adequate range and the greatest field of fire on either side of the sector. Each small square represents 100 meters on the side, so each large square will represent 1000 meters on the side. If you are working with a map scaled in yards, the squares will be in yards, and if it's a meter map the squares will, of course, be in meters. At this time we will assume that I'm using a 1/25,000 meter map.

Prior to placing the mortar position in any square, we must get the proper grid coordinate from

*The Weapons Department of The Infantry School indicates that SFC Acreman's proposals and procedures are entirely workable and, in addition, illustrate the flexibility of the target-grid system of fire control.

a map. Assume that we get this data and place in the mortars. The next thing we do is number the grid coordinates on the M-10 plotting board exactly as they are on the map. When this is done, put in the deflection scale as is normal, using the older method.

Now let's assume that the forward observer calls for base point registration and calls in the grid coordinates of the base point.

When this happens here's what we do: We check it on a map to make certain the coordinates given are correct. (The base point has to be something you can definitely locate both on the map and on the ground. It's best that it be a road junction or something equally specific.)

Next we must plot the coordinates on the board and mark it base point (BP). When the adjustment is complete you usually find that you have a different deflection and range. Erase all the plots except the first one — the one marked

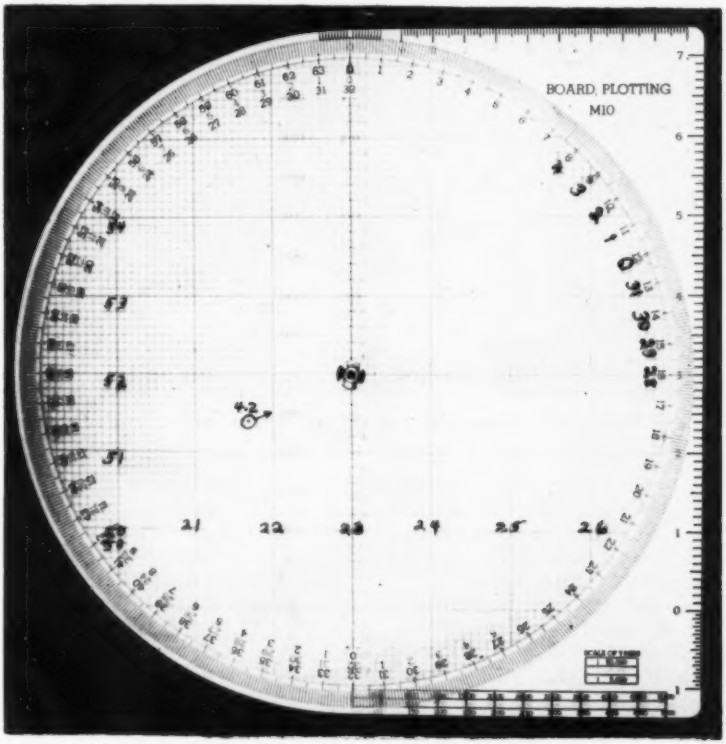


Figure 1. The grid coordinates, mortar position and deflection scale placed on the board.

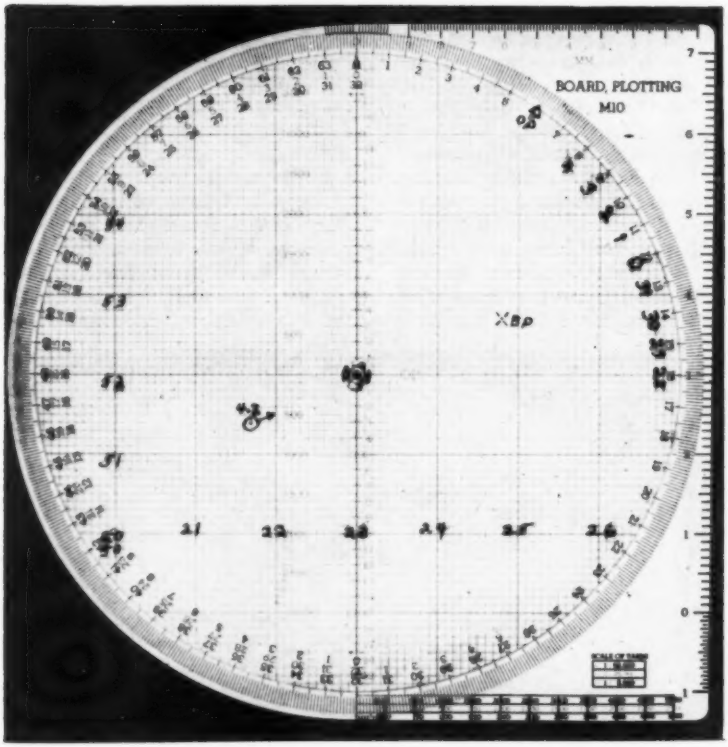


Figure 2. Base point and OP azimuth to base point.

BP. Deflection corrections will be made by referring the sights and realigning the stakes. You take care of range corrections by drawing in an adjusted gauge line on the graphical firing table.

Now the M-10 plotting board is ready for operation, either by use of grid coordinates or by adjusting from the base point. When the forward observer calls for a fire mission by grid coordinates, you only have to rotate your board until the 0 or 6400 is over the index mark, make a plot at the grid coordinate, line up the mortar position with the plot by the parallel line method (the older method), and read your deflection and range. If you are using a meter map, all the ranges you take off the M-10 board are in meters. You will have to compensate for this on your graphical firing table. You set the hair line of the GFT over the word "yards" on the base, and draw a pencil mark through the "M" on the base. Put the meter pencil mark on the

range and read your hair line, or adjusted gauge line, for the charge of powder to be fired.

I find that this use of the M-10 board saves a lot of time, provides less opportunity for error, and found it to be far more efficient in combat.

Problem Using the Acreman Method

Let's fire an imaginary problem using this method. (See Figure 1.) We will first orient the board until the 0 of the outer scale is over the index mark. The mortars are laid on an azimuth of 1200 mils. This will be 0 on the deflection scale. The mortars are located in grid square 217514 on a 1/25,000 meter map. We place the mortars in the square on the board that will give them the greatest field of fire on either side of the 0 on the deflection scale. We now number the squares on the board, starting with the one in which the mortars are located (grid square).

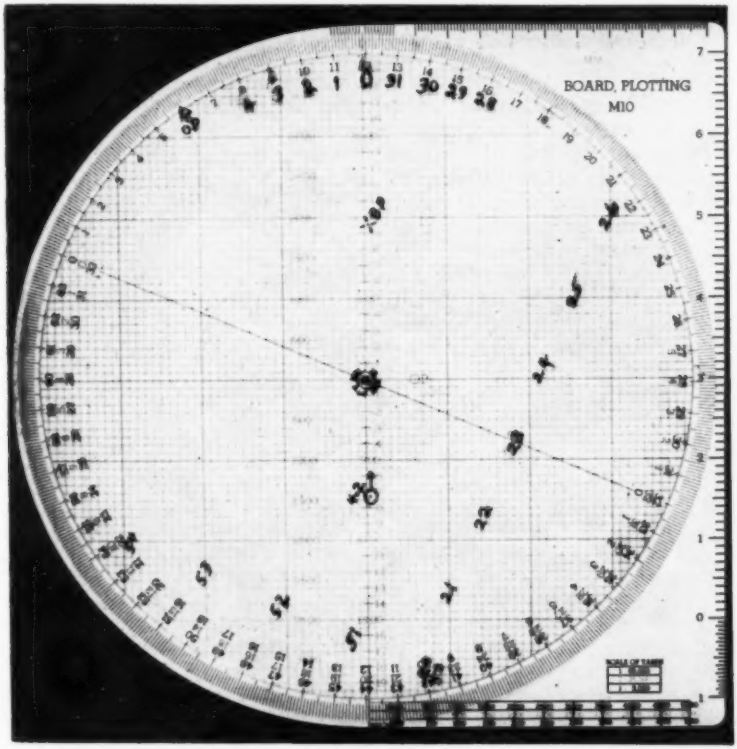


Figure 3. Base point lined up with the mortar position in order to obtain deflection and range.

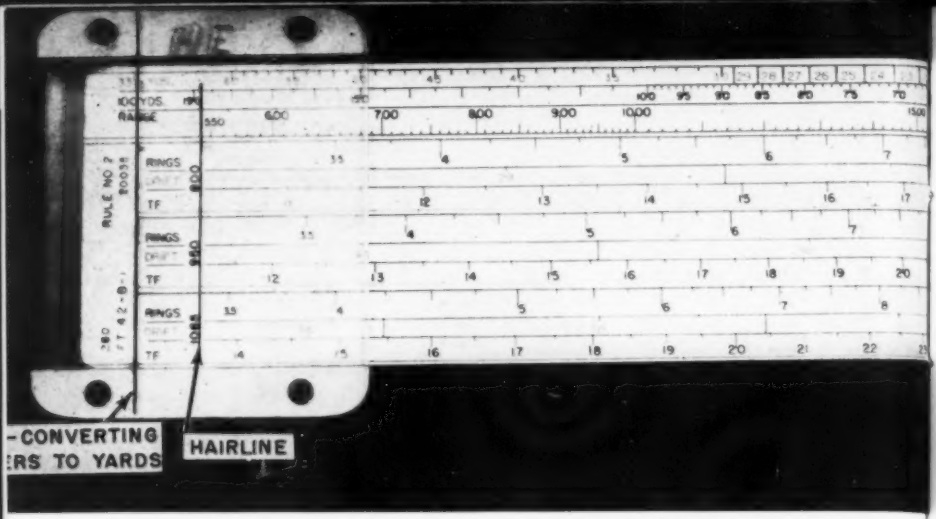


Figure 4. The meter line drawn on the graphic firing table so that meters can be converted to yards.

Our forward observer calls for registration on a base point. (See Figure 2.) He says his azimuth is 600 mils and the grid coordinates of the base point are 248527. We plot in the base point on the board in the same grid coordinates the forward observer called in. Then we place a triangle over the 6 on the outer scale. The 6 represents 600 mils, or the OT azimuth to the base point.

Our next step is to line up the base point plot and mortar position plot vertically, using the parallel line method. (See Figure 3.) The mortar position should be toward the bottom of the board. We read the deflection at the index mark. The deflection for the first round, we will assume, is 10 mils. The range is obtained by counting the squares between the two plots. The range we determine to be 3360 meters.

We next arrange the graphical firing table so that we can convert meters to yards. (See Figure 4.) We accomplish this by placing the hair line over the word yards and drawing a vertical line through the letter "M" which represents meters.

The elevation and charge to be fired is arrived at by placing the meter line on the graphical firing table over the range of 3360, and reading the elevation and charge at the hair line. We find the elevation to be 800 mils and the charge $18\frac{7}{8}$.

We fire an imaginary first round. It doesn't hit the base point. The forward observer must make an adjustment. (We are firing high explosive ammunition.) He calls back, "Right 100, add 400." The forward observer gives the adjustment in yards, but the board is in meters. Since there are approximately 90 meters to 100 yards (the difference is slight) we make our adjustments as if the board was set up in yards. We rotate the board until the OT azimuth is over the index mark. OT azimuth is 600 mils. From the first plot we go right 100 and add 400 and make another plot. Line this plot with the mortar position and you get

a deflection of 42 mils, and a range of 3750 meters. The elevation is still 800 mils and the charge is 22¼. This round is fired and the OP says, "Right 100, drop 200." We go through the same procedure as in the last step. He calls, "Left 50, add 100." (You will find these additional plots by referring to Figure 5.)

The last round hit the base point. We now have some computations to make in the Fire Direction Center. The base point was hit with a deflection of 18. We move the base point back to the first plot (see figure 6) and we find a deflection of 10 mils (our original deflection). (See figure 3). We have a difference here of 8 mils. After the first round the mortar tube was moved to the left 8 mils to hit the base point. We give the mortars a deflection of 8 (left). They relay on the stakes with that deflection. We give them a deflection

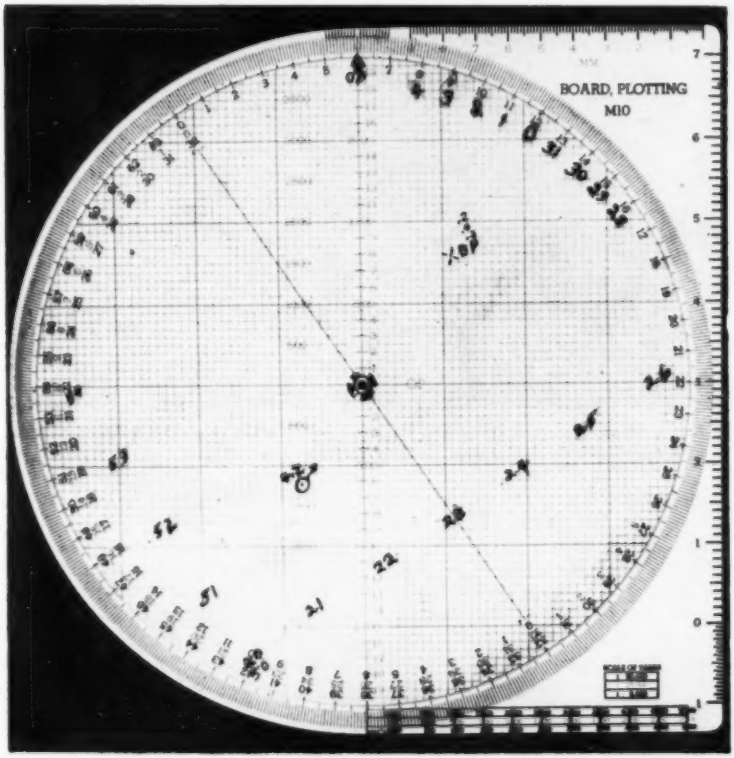


Figure 5. Recording the adjustments made by the forward observer on the base point.

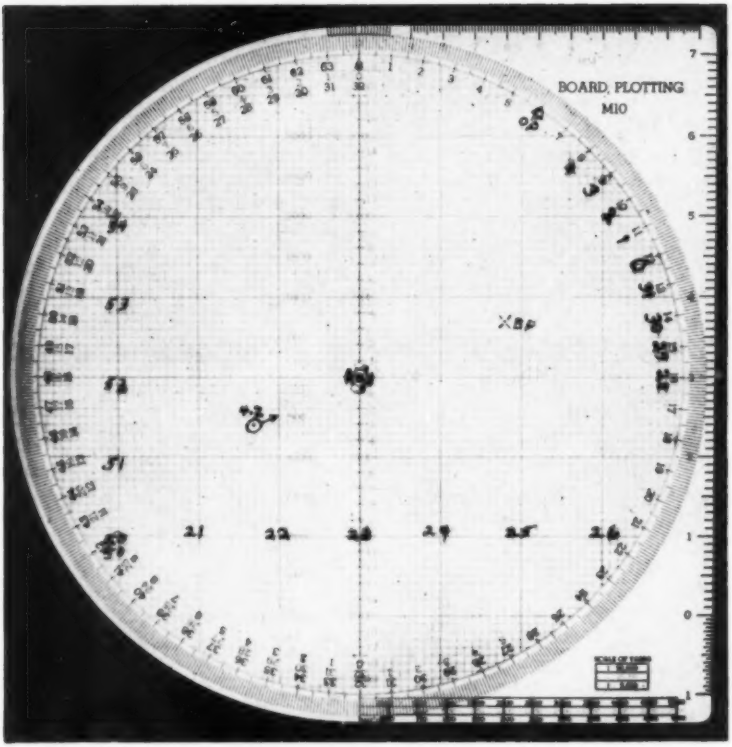


Figure 6. Base point in original position after adjustment is complete. Map corrections for range and deflection have been made.

of 0, refer and realign aiming stakes. Now the stakes have moved to the left 8 mils with deflection "0" on the mortar sight. The mortars are now given a deflection of 10 mils. So far as deflection is concerned they will hit the base point if they fire another round.

We now must make the range correction. We started off using a charge of 18⅞ for a range of 3360 meters. We hit the base point with a charge of 21¾ at a range of 3700 meters. (See figure 7.) It is now necessary to set the meter line on the graphical firing table over the range 3360, and draw a pencil mark through charge 21¾. This line is called the adjusted gauge line. The center hair line doesn't concern us at all at this time. All we have to do is set the meter line over the range we want and read the charge at the adjusted gauge line.

In this problem we have made map corrections for both deflection

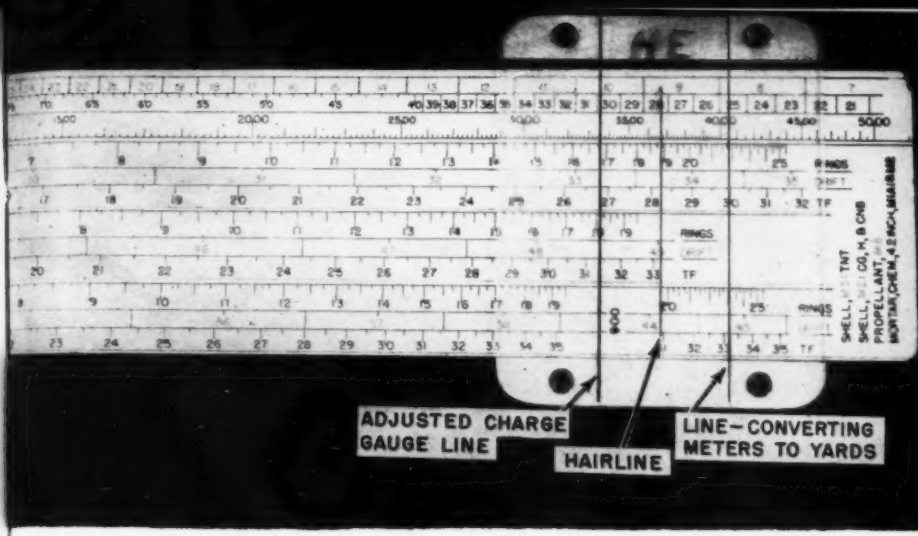


Figure 7. The adjusted gauge line drawn in to permit making map corrections for range.

and range. Deflection corrections are made merely by moving aiming stakes to the right or left. Range corrections are made by putting in an adjusted gauge line on the graphical firing table. At this point, should the forward observer call for fire on a given target using grid coordinates, the first round will either hit the target or be so close that it will take only a 100-yard bracket to get on it. It's really an easy method — isn't it?*

*All azimuths used in this text have been converted to grid because the M-10 plotting board is gridded and magnetic azimuths cannot be used.

Publication of this article is not necessarily to be interpreted as reflecting the views of The Infantry School or The Infantry School *Quarterly*.

The true strength of any Army lies in its moral character and the spirit of its soldiers — they must know and believe in the ideals of their country and be willing to protect and perpetuate them.

— General J. Lawton Collins

BRINGING THE MOUNTAIN TO MOHAMMED

Major R. H. Hitchcock
Major A. R. Bolling, J

✔ Want more realism in map problems? Here's how . . .

"WE'VE GOT to find a way to get more realism into our map problems here at The Infantry School," the old man said.

We agreed.

"You know," he continued, "Infantry leaders must learn to make their estimates and decisions based on what they *see* of the ground, not on what has been written describing the terrain."

Again we agreed and added that this teaching problem was not peculiar to Benning, but applied equally to Army Reserve and National Guard unit instruction.

"You know," he said, "in map problems students often have to ask about the density of a wooded area. Sometimes it's necessary to precede each requirement with a lengthy discussion about streams, draws and trees. The trouble with this is that it can guide a student directly to the school solution. It isn't realistic. Too many questions can't be answered by a map."

He paused for a moment to make a note on his memo pad.

"I want you to start experimenting. See what you can come up with that will solve this problem."

That's how we got started, and with the help of the entire Tactical Department (because it eventually became a department project) we recently conducted a successful experiment. With the aid of photography, we succeeded in bringing "the mountain to Mohammed."

Conduct of the Exercise

We chose a battalion attack exercise. One that uses Benning terrain and is presented eight times a year (twice using the actual terrain and six times as an indoor exercise).

Instructors handling this problem had noticed that the solutions of those students who had the actual terrain to work on were usually more sound and logical than those who did their work indoors using maps alone.

As a first step we prepared a homework assignment which called for a thorough map study of the battalion zone. Students were asked to study the map and select critical terrain features.

The following day (in a classroom) we conducted a short conference in which the principles applicable to the problem were presented. At the conclusion of the conference, the initial situation was discussed.

This phase is followed by a six minute motion picture. The first portion of this film presents an aerial view of the area under study. The latter half gives ground views of all the terrain features which a battalion commander would logically study to complete his plan of attack.

— Photographs by Mr. R. J. Ray, Jr.

Figure 1. The panograph in use. One student points to the OP location on the map while another indicates the regimental objective (on the panograph) as seen from the OP.

The camera literally becomes the eyes of the student during this (indoor) reconnaissance. Our supplementary narration merely pointed out the various terrain features. We studiously avoided saying anything that would "steer" a student to a "school solution" terrain analysis. At the conclusion of the movie those students who desired further study of a particular part of the terrain were shown a slide of the area desired. (Slides of each principal scene in the movie were available.)

After the "camera reconnaissance" the students were directed to make a plan for the continuation of the attack. Whenever a personal reconnaissance was necessary, both films and slides were used. The pictures showed the required area from a location likely to be used by an actual commander to make his terrain evaluation. This added considerable realism to the problem and gave the student an opportunity to study the ground from a location pertinent to any specific portion of the problem. Although indoors, he actually used the terrain as he might in combat.

The Panograph

Because even movies and slides sometimes fail to present all that may be needed, the "panograph" was developed to provide the "big picture." The "panograph" is a mosaic which presents the entire battalion zone as seen from the original OP. This mosaic is placed on an arced piece of beaverboard curved to give a realistic perspective. The arcing of the board creates depth and gives the observer the feeling of perspective as well as the nearness of the terrain on either flank. (See Figure 1.)

Three of these "panographs" were prepared and placed in the rear of the classroom where students could study them during breaks. It kept everyone oriented. It was so highly successful the students called it "The OP."

The film, slides and "panograph," together with a map, provided a thorough knowledge of the terrain. Each student could arrive at tactical decisions without the aid of

written or oral "crutches" describing the terrain.

We must remember that while the picture system is successful, it is only a terrain substitute. The *best* way to train a future commander is on the ground. Don't use photos or movies just to keep people in comfortable classrooms. The techniques described in this article are meant to improve the many situations where the map problem must be used.

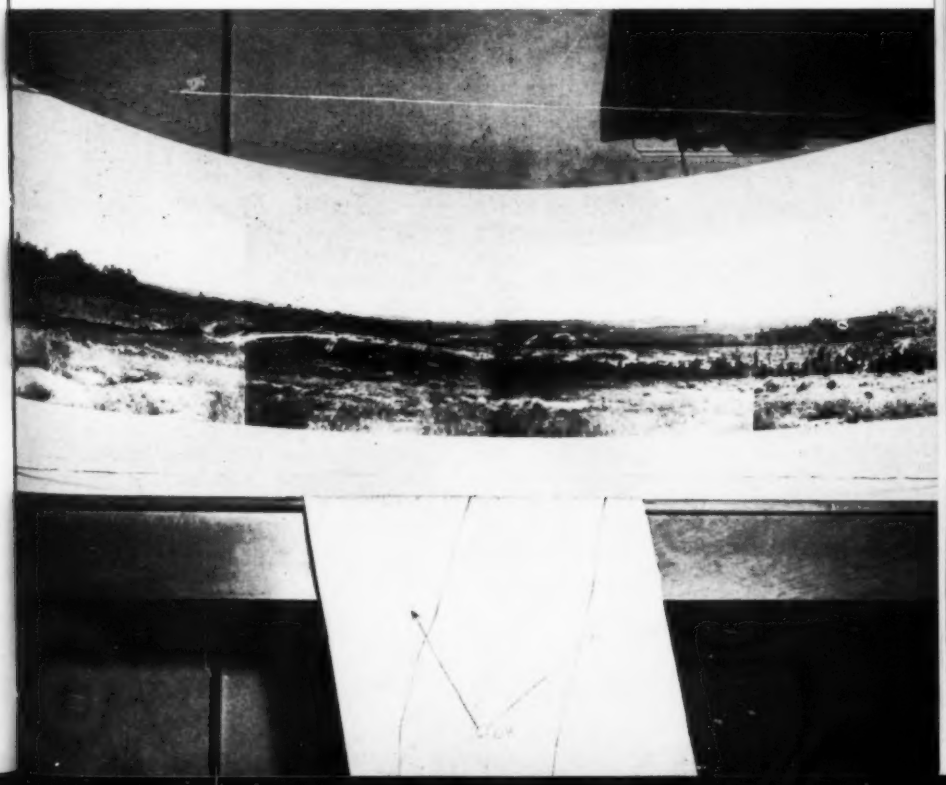
Questions and Answers

We have tried to anticipate some of the more obvious questions that might be asked and have supplied answers based on our own experience. Here they are:

"Can I use this system in my school or unit?" The answer is yes. The three means described or any one of them singly can be used by any unit that teaches tactics. ROTC, National Guard, Army Reserve schools, the training division or a unit in a reserve area in combat can all use the system described to advantage when conditions prevent an actual terrain exercise.

Several Infantry School problems will be prepared in packet form for civilian component use. In the packet, along with the normal instructional materials, will be a 16-mm film (with a narration on the sound track), slides showing the principal areas covered and a strip of photos (small but usable as a hand-held "panograph").

If you had reference to problems you want to prepare yourself, the answer is still yes. You will need help from the Signal Corps or you



can depend on your own photographic abilities, but you can make all three of the aids described for your problems. Do it this way:

When you have the problem firmly in mind make a thorough ground reconnaissance. Ask yourself this question, "What will the student need to know about this terrain to solve the problem?" Choose OPs that would logically be selected by a commander on reconnaissance. When you are satisfied that you know the ground, then move to the next step. This step is called "writing the shooting script." It is not difficult and need not be technical. It is just a written outline of what you intend to do. It permits you to work in a logical sequence and provides a check list to prevent missing essential scenes. Here is a brief example of what is written into a shooting script:

Scene 13: "From OP on Hill *1* have camera look at Hill 7, then move camera to focus on Hills *3*, *5* and *4*, pausing on each hill. Make each move very slowly."

Scene 14: "Long shot of Hill 7. Hold for 10 seconds."

Scene 15: "Close-up of Hill 7. Hold for 10 seconds."

* * *

When your shooting script is done, then get together with your movie cameraman and take him out to see the actual terrain. Show him your planned setup. Go over the shooting script with him. You may have included something the camera can't do or the photographer may have an idea that will materially improve the end result. So keep flexible.

Now you're ready. Decide on a time to do the job and hope for good weather. The kind of pictures you want can only be made on a bright, sunny day. Take enough film footage, and don't use the camera like a machine gun on a swinging traverse. You want clear shots — not blurs. Remember, you want things to appear as they do to the eye.

A still camera (speedgraphic, Leica or box brownie) can be used to get the still shots for slides and "panograph." Take shots of each principal scene. When panoramic coverage is desired, do as we suggest in Figure 2.

Your still camera should be mounted on a tripod. Start at the left (or the right) of the area to be photographed, noting the limits of coverage in the view finder. Take a picture, move the camera to cover the next sector (but be certain some overlap exists). Continue this process until the entire area has been covered. A little common sense and a look in the camera view finder now and then should enable you to get the desired overlap. This overlap is necessary to provide continuity and to prevent blank areas.

Processing

After the motion picture film has been developed and printed, it must be edited. It's best to get professional help (such as your local Signal Corps installation) but you can do it if you have a splicer and are acquainted with film editing. The quality of your picture depends upon how carefully you cut out undesired portions and equally upon the way in which you put the desired portion together. Remem-

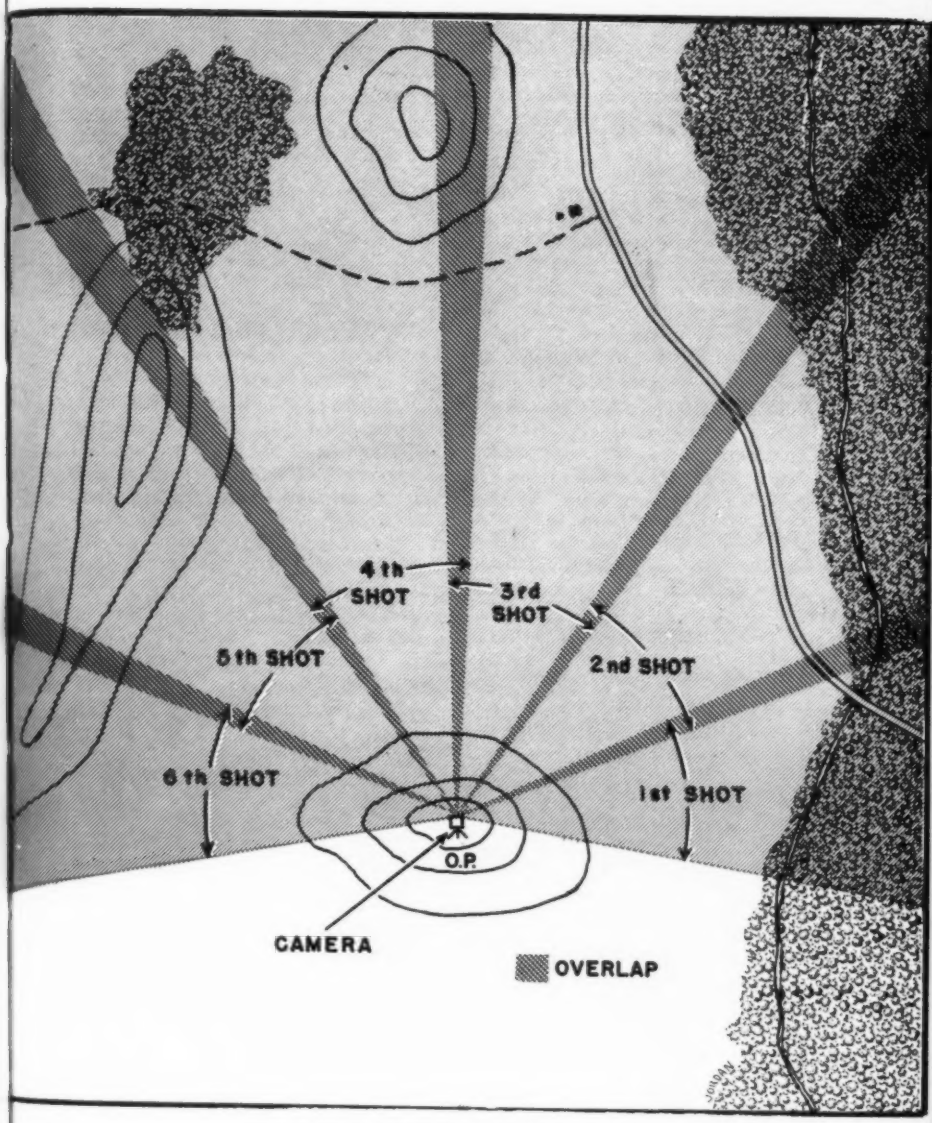


Figure 2. Overlapping Shots

ber, you want it to follow a logical sequence.

The still shots present no real problem, since they can easily be converted into slides by any Signal Photo lab.

Making a "panograph" of your other still pictures is like putting together a mosaic of air photos. The prints used should be approximately the same tone and shade. Where necessary cut away the white border and carefully place each photo in its proper position. Rubber cement, dry mounting tissue and library paste will work to hold them in place. Best results, however, are obtained when dry mounting tissue is used and the prints have been made on matte* paper. (See Figure 3.)

Figure 3.
Putting Together Still Shots

To prepare your completed "panograph," a piece of beaverboard must be bent into an arc and held in position with a pair of wires with hooks on the ends.

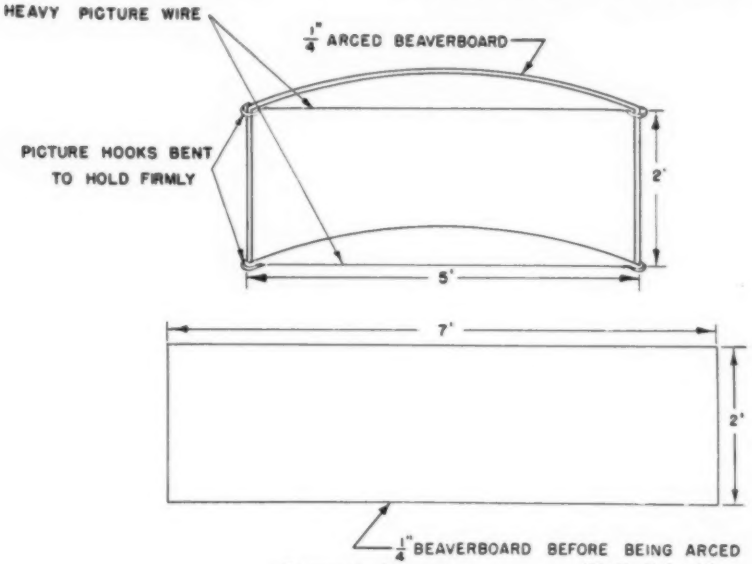


Figure 4. Blueprint — *Pfc V. Cafarelli*

*Matte paper is used when a dull finished print is desired.

Picture wire and hooks work nicely. (See Figures 4, 5 & 6.) Bend the board and hold it tight with wire as shown in Figure 4. When you have done this, thumbtack or staple the pictures on to avoid buckling.

"Is it costly?" No. Cost depends a great deal upon one's own ingenuity and the availability of materials and personnel. The total cost of the first Infantry School production was less than $150 and was done by a Signal Corps crew using a 35-mm camera. If you use a 16-mm camera and have your local Signal Corps laboratory do the processing work, the only cost will be for materials.

"Do I need technicians?" No. They are nice to have and will make the end product better but an amateur photographer can do a creditable job. There will probably be one or two camera bugs in your outfit who will be glad to help out.

"Is there anything else that can be used to make the problem more interesting and effective?" Yes. We feel that we have only scratched the surface. You could use aggressor-clad troops to build up the enemy situation; smoke pots or grenades to mark hard-to-define areas just as actual smoke shells are often used in combat; take movies of the map and shift periodically from map to terrain to get better orientation; use an opaque projector and a second screen to project a map adjacent to the movie screen where the slides and motion pictures are shown; use a tape recorder to narrate your movies. (See Figure 7.)

Figure 5. Hook Being Placed

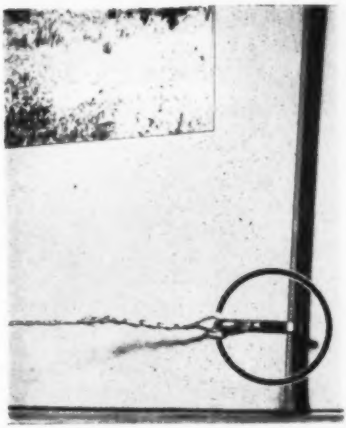


Figure 6. Hook in Place

"Is it possible the picture 'reconnaissance' will have a combat use?" At the risk of sounding visionary it is entirely possible that in some future war commanders of regimental size units may sit in their "Video" war room watching several television screens on which terrain or operations are shown. This may well be a guide for both the planning and conduct of an actual operation. This is merely an extension of the system we've been discussing.

Figure 7. Two Screens

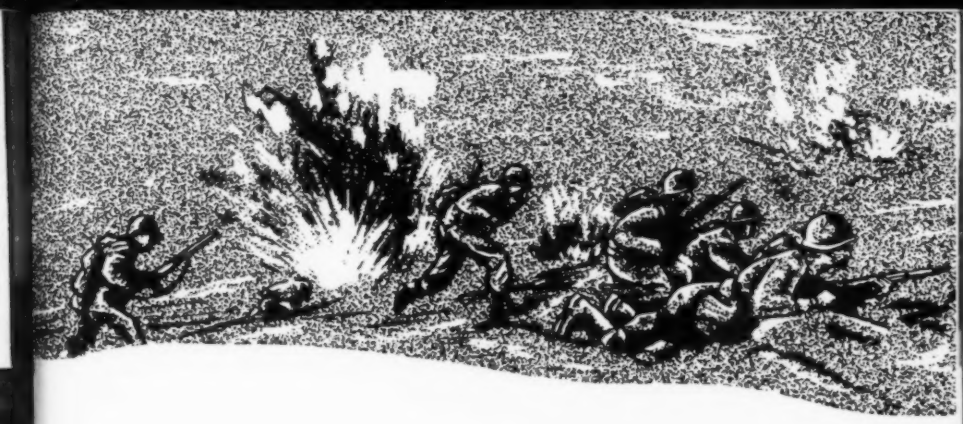
If we eventually get something similar to the Land Polaroid process* for movie camera, it may be entirely possible for a battalion commander in the field to issue his order using a film taken during his reconnaisance. It would serve to aid in arriving at a meeting of the minds and could prevent much confusion among subordinates.

An instant process camera of this type could do wonders for training. Think how easy it would be to conduct a critique of a platoon attack exercise by showing a movie of *that* platoon made during the exercise. How much more effective it would be to let them *see* their mistakes rather than have to rely entirely upon one's memory, check sheet and words alone.

What S2 wouldn't like to be able to have pictures made by a reconnaissance patrol? Imagine actually seeing what the patrol saw instead of playing an endless question and answer game?

The use of pictures is endless. We hope that we have stirred up some thought regarding the possibilities of using photography in your job. And we want to hear from those of you who have other ideas for "Bringing the Mountain to Mohammed."

*In the Land Polaroid process a special film is used. This film develops itself (within the camera) and is delivered 60 seconds after the picture is taken.



Combat and Training Tips

The following training tips are taken from current practice at The Infantry School. The combat information is from Combat Training Bulletins published by the Office, Chief of Army Field Forces. They are reprinted here as background information that will be useful to combat Infantrymen.

Use of Dummy Ammunition During Marksmanship Instruction

The use of dummy ammunition during sustained fire exercises has proved very effective in checking trigger squeeze and the application of immediate action. These cartridges are used during the instruction firing phase of the M1 rifle by spacing several rounds (three are recommended) in a full clip of ammunition. In mixing those dummy cartridges with live ammunition, the firer must not know how they have been spaced. Consequently, during the sustained fire exercises the firer never knows when his rifle will fire. When the hammer falls on a dummy cartridge, any improper trigger squeeze on the part of the firer can be detected quickly and easily by the coach. After each dummy round, the firer must apply immediate action in order to eject it. The time for sustained fire exercise is extended from 50 to 56 seconds to allow time for the application of immediate action. Therefore, it can easily be determined whether the firer understands and knows how to apply immediate action.

Machine Gun Headspace Adjustment

Instructors at The Infantry School have learned from experience that emphasizing *adjustment* of headspace instead of *checking* it is far more preferable when training new men. They should be taught to assume that the weapons have improper headspace, and to develop the habit of automatically adjusting headspace before they

fire the weapon. It has been found that too many errors are made in checking headspace, and many weapons are fired with improper headspace, resulting in unsatisfactory performance of the gun.

Force Enemy Into Open

The enemy can be forced to expose his forces to the destructive power of artillery and tactical air by well planned, aggressive limited objective action against areas vital to his security and future operations. Aggressive patrolling and well protected advances of battalion and regimental size units, designed to force the enemy to fight, will subject him to the destructive fires of artillery and tactical air. By forcing the enemy to disclose his location and to expose himself to our fire power, his preparations for attacks can be disorganized and disrupted.

Quadruple .50 Caliber Machine Guns

In one instance an Infantry battalion made a night withdrawal through enemy small arms fire and road blocks. The action was successfully completed at little cost in personnel and equipment by employing the supporting fires of the quadruple .50 caliber machine guns of an AAA Battery.

Wounded

At times wounded men have been killed by enemy at close range while riding back to aid stations. Experience indicates that it is advisable for the wounded to keep their weapons with them while in enemy territory or while under fire.

Wire

Wire-laying crews must be taught to lay wire cross-country, at least 200 to 300 yards from the traveled road. Vehicles and tanks are often forced off the roads and tear up telephone wires laid too close to the roadside.

Movement Through a Corridor

In advancing along a corridor it is necessary for security elements to pass beyond the limits of the corridor, in order to observe into adjacent terrain compartments. The commanding terrain controlling a corridor must be seized or controlled to allow advance against resistance. The rate of advance should be only as rapid as the seizure of the adjacent dominating terrain.

North Korean Tactics

In the attack, in some instances, a group of 8 or 10 enemy will raise their hands as if to surrender. When fire is lifted and UN forces move out to accept these prisoners, a company size enemy force will launch an attack from concealed positions. While friendly forces concentrate fire on this group, an enemy force is sent around to attack the flanks.

Harpoons

In one case, UN forces failed to cover the rear portion of their position. It was felt that the almost vertical cliffs in this area would prevent enemy infiltration. The enemy, however, used a device similar to a whale harpoon and shot the harpoon, with a rope attached, to the high ground. Enemy troops then climbed the rope and attacked from the rear.

The New Counterfire Platoon

MAJOR QUINTEN L. GATES

"LOCATE THAT MORTAR; it's holding up our advance."

How many times have we heard such a request in combat, but how frequently have the means to expedite the location of the weapon been conspicuous by their absence?

Today, however, we have the counterfire platoon. Its mission is not only to locate "that mortar" but to sound locate all enemy close support weapons which the human ear can detect. Its mission also includes the prompt reporting of information so that it can be used by our supporting weapons for counterbattery fire. There are other agencies available to the Infantry regiment for conducting such operations, but of these the counterfire platoon, using "sound ranging" equipment, is both the newest and — I believe — the best.

How Counterfire Information Is Used

For those who may be unfamiliar with the role of the counterfire platoon, it might be well that we briefly review how the information it obtains is used.

The operator must hear the report of the enemy weapon and make a fix. This information is reported to the counterfire information center. The information center quickly reports to the regimental S-3, who in turn selects a suitable weapon to fire the mission. The effectiveness of counterfire operations depends upon the speed with which the counterfire weapon is selected to engage each counterfire target.

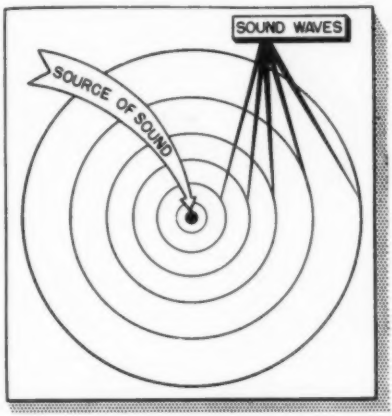
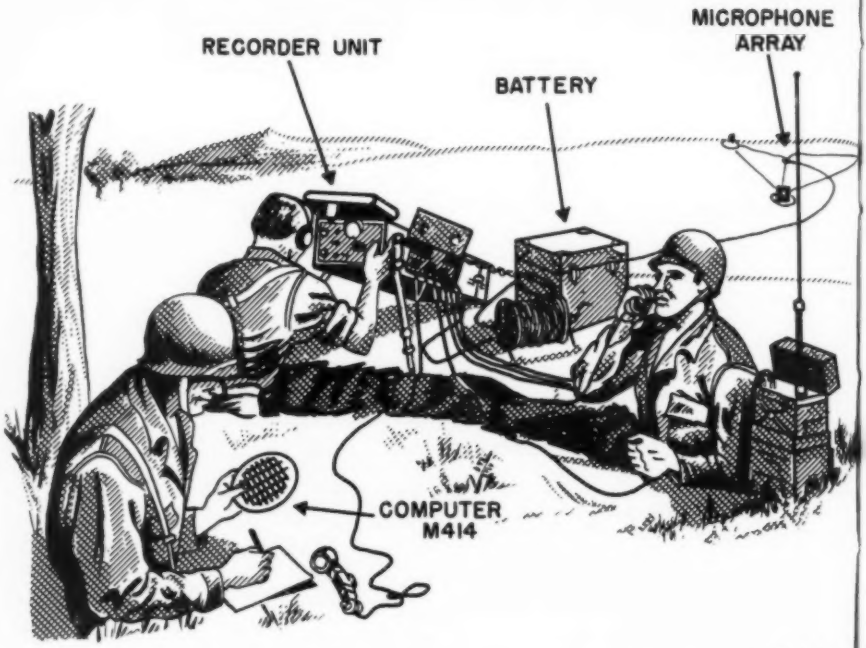


Figure 1.

Sound Waves

Before we discuss either the platoon or its equipment let us examine the basic theory of sound waves. This is necessary in order to understand "sound ranging."

Sound waves are like the circular ripples formed on the surface of water when a pebble has been tossed in. Like the ripples, sound waves travel outward. When a weapon is fired, its sound waves travel outward at approximately 367 yards per second — in all directions, away from their source. (Figure 1.)



— Cpl Jack

Figure 2. Sound Locating Team in action.

Sound Ranging

"Sound ranging" is a term applied to the use of these sound waves to locate the source of a sound. More specifically, the sound locating set GR-6A, organic to the counterfire platoon, uses these sound waves as a basis for determining the location of enemy weapons.

These sound locating sets consist of two identical recorder units and a microphone array. Each squad (two teams) has one set (GR-6A). Figure 2 shows the equipment employed by one team.

Organization of the Counterfire Platoon

The counterfire platoon now organic to the Infantry regiment (T/O&E 7-12N, 15 May 1952) is organized as follows:

Platoon Headquarters

One lieutenant platoon leader, who functions as a special staff officer and operates the regimental counterfire information center under control of the regimental S-2.

One sergeant first class — platoon sergeant.

One corporal — platoon radio mechanic.

Three Counterfire Squads

Each squad is divided for field operations into two teams of men. Each of these teams is capable of determining the direction (azimuth) of the source of a sound. The teams in the squads are organized as follows:

Right Team: One chief operator (squad leader).

One computer and one plotter. (Unless otherwise specified the right team is the control team of the squad.)

Left Team: One operator (assistant squad leader).

One computer and one plotter.

Methods of Working Counterfire Squads with Counterfire Weapons

In conducting sound ranging operations the following takes place. Each team of a counterfire (sound locating) squad sets up at one end of a base line of known length and azimuth. Each team then determines the azimuth from its location to the source of a sound. This information is consolidated by the control team (the Right team). The control team places this information on a map, aerial photograph, or plotting board. The azimuth lines are extended until they intersect. The point of intersection represents the location of the source of the sound.

Once the location of an enemy weapon has been determined, the execution of counterfire missions is coordinated by the regimental S3. The weapon selected to fire the counterfire mission may be any ground weapon available to the regiment or its supporting elements. These weapons may be employed in connection with the counterfire squads by three methods: normal, close or immediate. The method selected depends upon the channels of communication and distance between the sound locating squads and the counterfire weapons. Let us consider these three methods in detail.

Normal Method

The normal method of association between the sound locating squads and weapons used in counterfire operations offers the greatest amount of flexibility and the maximum use of sound locating data by all available counterfire agencies. In this method there is no direct contact between the counterfire weapons and the counterfire squads or any other target information collection agency. The counterfire squads are under regimental control. (See Figure 3.)

The counterfire squads are disposed laterally across the front of the regiment without regard to sectors. The teams should be so located on the terrain that they have complete coverage of the entire regimental sector. This is the primary consideration. The number of squads employed (two or three) is dependent upon the width of the regimental sector. For example, the teams of a counterfire squad can operate up to 700 yards apart. This permits an area approximately 2100 yards to be covered by one squad.

Two sound locating squads could cover a regimental sector, 4200 yards in width, if terrain exists in the forward part of the sector which provides good operating locations. In addition to lateral dispersion, sound locating sets must be located well forward due to the limited range of the equipment and to prevent the operators from con-

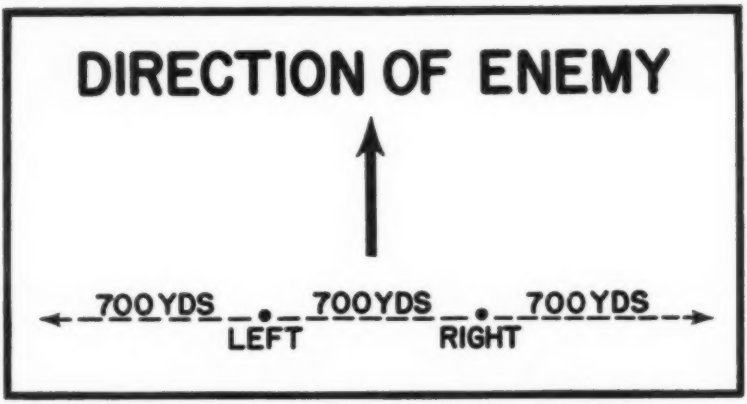


Figure 3. Normal method — team operation.

fusing enemy and friendly battle sounds.

Each squad reports information as obtained, direct to the counterfire information center, by the most expeditious means available. The counterfire information officer promptly reports enemy gun locations to the regimental S3 and counterbattery fire is delivered without delay.

The normal method is used whenever the tactical situation permits; that is, whenever the speed of movement does not prohibit the installation of a satisfactory and complete communication net and the detailed processing of counterfire information.

When the communication necessary for normal counterfire operations through the regimental counterfire information center does not exist, a counterfire squad may be used in either close or immediate association with selected counterfire weapons.

Close Method

In the close method (Figure 4) a specific weapon or battery is designated to fire on targets located by the sound locating squad. The ideal position for the counterfire squad is not more than 1000 yards in front of the counterfire weapon with the teams of the squad an equal distance away from the counterfire weapon. Any position that permits communications to be maintained between the counterfire weapon and the counterfire squad may be selected. If the counterfire weapon is sufficiently close to the counterfire squads for the sound of the counterfire weapon to be heard by the members of the counterfire squad, then the squad position and the weapons positions can be surveyed together by sound. If this is the case, the information relayed to the counterfire weapon from the squad would be in the form of an azimuth and range from the counterfire weapon to the target. If this

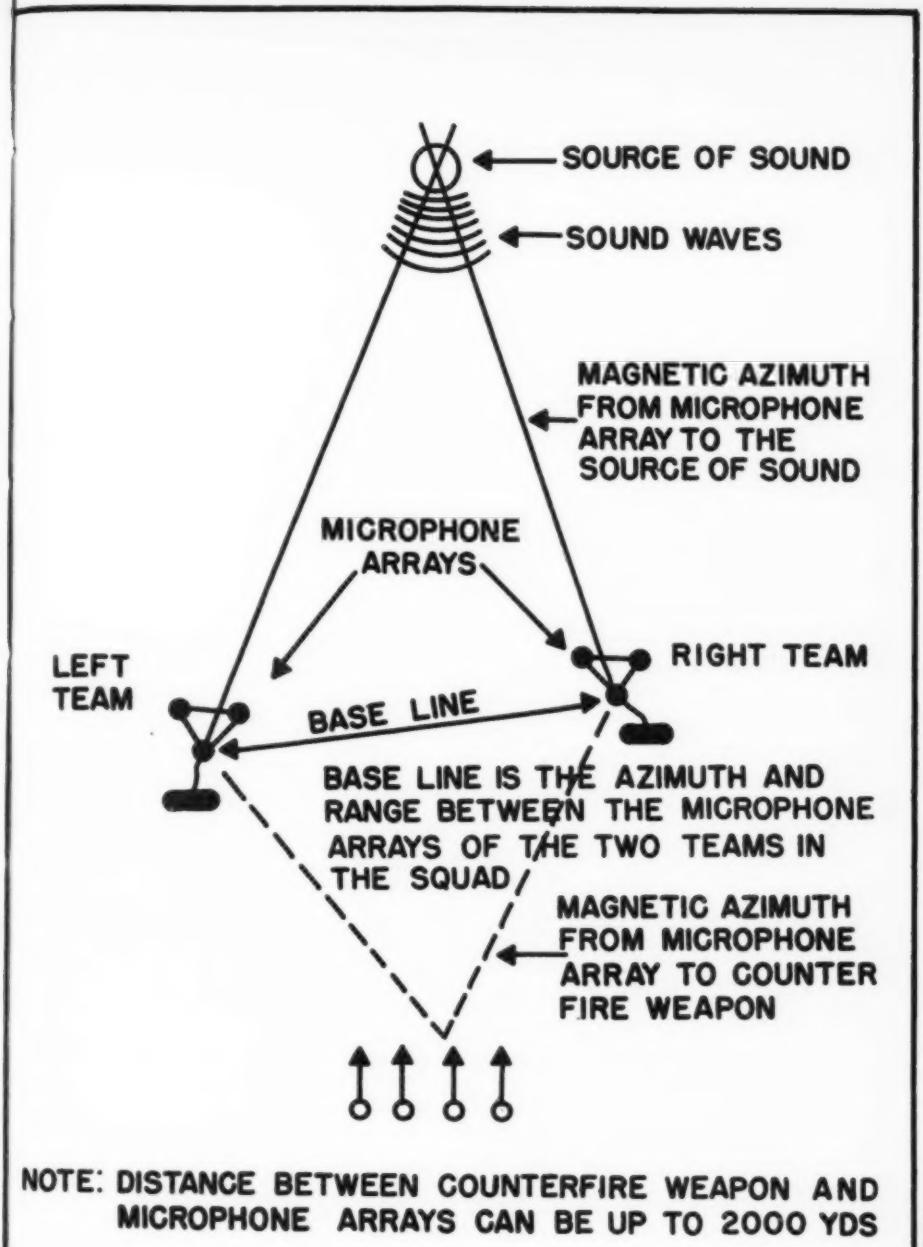

SOURCE OF SOUND
SOUND WAVES
MAGNETIC AZIMUTH FROM MICROPHONE ARRAY TO THE SOURCE OF SOUND
MICROPHONE ARRAYS
LEFT TEAM
RIGHT TEAM
BASE LINE
BASE LINE IS THE AZIMUTH AND RANGE BETWEEN THE MICROPHONE ARRAYS OF THE TWO TEAMS IN THE SQUAD
MAGNETIC AZIMUTH FROM MICROPHONE ARRAY TO COUNTER FIRE WEAPON
NOTE: DISTANCE BETWEEN COUNTERFIRE WEAPON AND MICROPHONE ARRAYS CAN BE UP TO 2000 YDS

Figure 4. Close method of association. — *Pfc Tom Weiland*

survey is impracticable, and maps of satisfactory scale are available, the sound locating squad may transmit target locations in the form of map coordinates to the counterfire weapon. Wire and radio communication should be established between the control team of the squad and the counterfire weapons for relay of counterfire information.

The steps taken by the counterfire squad to obtain and relay the location of the target to the counterfire weapon are as follows:

1. The enemy weapon fires.
2. Both the right and left teams of the counterfire squad range on the enemy weapon.
3. The azimuth from both teams to the enemy weapon is computed by team members.
4. The plotter at the control team plots the two azimuths on a plotting board, map or map substitute. The intersection of these two azimuths indicates the location of the enemy weapons.
5. The location of the enemy weapon is then relayed to the counterfire weapon.

(If the counterfire weapon and counterfire squad are surveyed, the location of the target will be reported by an azimuth and range from the counterfire weapon to the target. If no survey has been made, the coordinates of the target are relayed to the counterfire weapon.)

Immediate Method

Immediate association (Figure 5) with a counterfire weapon is a method of using a counterfire squad and a counterfire weapon as a team to engage counterfire targets with the least possible delay. It is used only when the need for speed is more important than good counterfire weapon or counterfire squad positions. In this method, the counterfire weapon position is in the immediate vicinity of the control team location.

For precision fire, the counterfire weapon or base weapon is not more than 15 yards from the number 3 microphone of the control team. For area fire this distance may be slightly greater.

In this method the only means of communication between the counterfire squad and the counterfire weapon are by voice and by hand and arm signals.

The counterfire squad surveys the base line, when practicable, but does not survey the counterfire weapon position. The counterfire weapon or base weapon position and its base aiming stake are on a line with the 3-1 Line (dotted line on Figure 5) of the control team. The counterfire squad computes the distance to the target from the number 3 microphone of the control team. It computes the angle to the target with respect to the 3-1 Line of the control team rather than the magnetic azimuth to the target. The squad leader gives the target distance and the target angle to the counterfire weapon crew or fire direction center as range and deflection from the base aiming stake. When the counterfire weapon or base weapon is 25 yards or more from the number 3 microphone of the control team, an experienced weapon crew or fire direction center may modify this data slightly to obtain firing data which will cover the target.

This method has the disadvantage

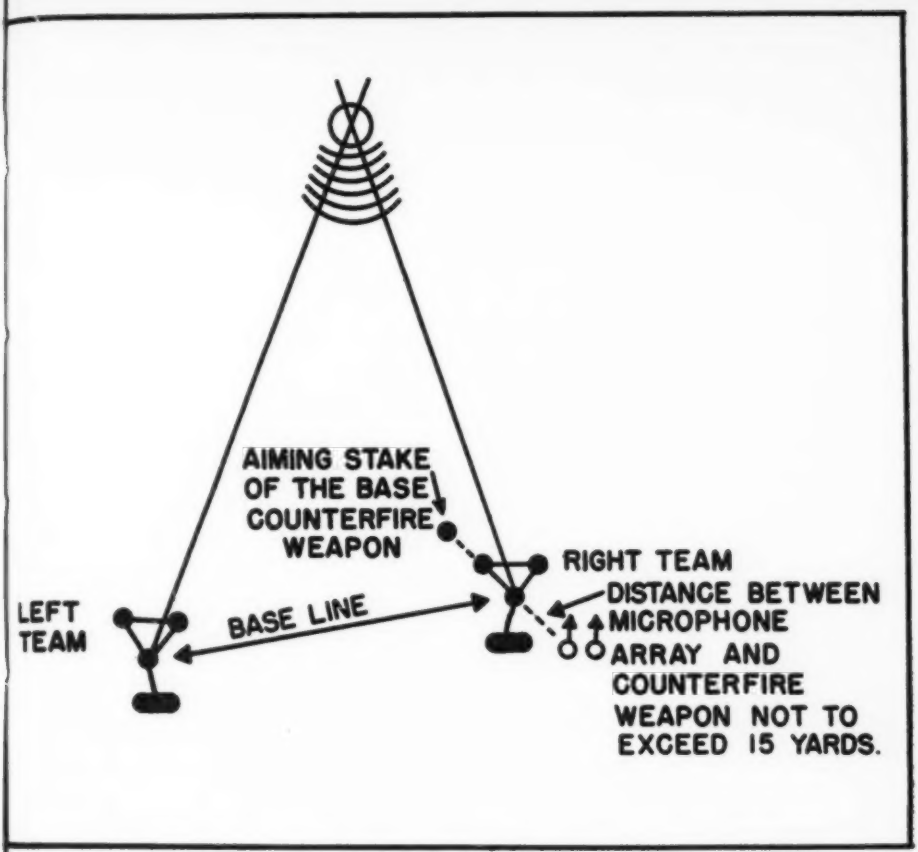


Figure 5. Immediate method of association. — *Pfc Tom Weiland*

of limiting counterfire weapon positions to areas where the terrain is suitable for squad locating. Such terrain seldom is favorable for indirect fire weapons, such as the heavy mortar. Therefore, during immediate association with the heavy mortars, sound locating squad and mortar platoon leaders coordinate their selection of positions for the counterfire squads. This usually requires that both the mortars and the sound locating squads move frequently to protect the mortars. When a rapidly moving situation slows down enough for a counterfire squad to establish communication and make surveys, immediate association is terminated.

Weapons Used for Counterfire

The type weapon used for counterfire depends upon the type enemy weapon located and the range to this weapon. With this in mind, artillery, 4.2-inch mortars, or air strikes can all be considered counterfire weapons.

Since the 4.2-inch mortar has the

greatest range of any indirect fire weapon organic to the infantry regiment and has superior area fire capabilities, it is generally considered the most suitable Infantry weapon for firing counterfire missions.

Training the Counterfire Platoon

Training the men in the counterfire platoon should include the following successive phases. The time to be spent with each phase is indicated.

First Phase (One week-ten days)

Mechanical training and instruction in theories of operation. This can be conducted in classrooms and on adjacent drill fields. The basis for this instruction is found in TM 11-2552A.

During this training, weapon sounds may be simulated by firing blank cartridges.

As a time saver all personnel must be given instruction during this phase in the use of the accessory survey and communication equipment. All personnel must be able to use the aiming circle, the range finder, and the compass with ease. They must also be able to install and operate radio and telephone equipment.

Second Phase (Two-three days)

Along with indoor and field instruction, training should be given in the recognition of battlefield sounds. This can be accomplished by the use of training films covering weapons of the Infantry division. To further acquaint the student with battlefield noises, he should be taken to an area where several types of weapons are firing. Locator equipment is not used at this time. The individual must learn to recognize the distinctive sounds of the several types of machine guns, mortars, and light artillery. After learning these distinctive sounds, it is well to have him stand on terrain adjacent to an actual impact area (with due regard to safety precautions) and be given ear training. This ear training will train the student to distinguish the characteristic discharge sound of the various weapons from other confusing noises, such as ballistic waves, echoes, and projectile bursts. The student should also be given practice in locating the firing weapon by ear. Once he believes that he has located the weapon, he must indicate this location on a map of the area.

Third Phase (One week)

This phase is devoted to field ranging practice. It involves the use of the sound locating set GR-6A and its associated equipment in areas where firing is conducted. The sound locating set is installed near the impact area to locate concealed mortars and machine guns. The instructor controls the firing of these hidden weapons to prevent a mixture of sounds that would confuse the student during this early stage of training. When both the individual and squad as a unit have learned to locate single weapons, we must make the business of identifying specific sounds more complex. We must now provide training that will teach each man to select the discharge sound of a particular weapon from among other such battle sounds. During this phase (or during some part of it) the squad should be placed in a covered pit and required to work while machine gun fire is passing

directly overhead. While under such fire they should also be required to locate mortars.

We must next consider the use of the sound locating set GR-6A and its associated equipment without the introduction of weapons employed in the counterfire role. Squad members are taught to use plotting boards, maps, and photographs. They must be given practical work in plotting a base line and in locating targets with respect to such base lines. The aiming circle and range finder should be used to check azimuths and ranges to plotted targets, and the azimuth and length of the base line.

Fourth Phase (Four weeks)

The final phase of training teaches coordination with weapons employed in the counterfire role, and to be effective, should include the actual engagement of located targets by these weapons. The personnel and equipment required to make the training realistic include actual weapons which are used to simulate enemy weapons and are grouped to include machine guns, 4.2-inch mortars and artillery.

Sound locator data is often employed on targets when adjustment or correction of fire by visual methods is not possible. The student must master this to be a good technician. It is desirable to teach the student how to make a careful recheck of all data in order to bring *accurate surprise fire* on the target area. This should be emphasized throughout this phase of training.

Weapons employed in the enemy role should be installed in concealed positions. Fire from these weapons is directed to pass overhead or to one flank of the counterfire squad's base line. The area selected should permit the range from the base line to the enemy gun positions to vary from a few hundred yards to the limit of human hearing.

The sound locating equipment is installed a few hundred yards in the rear of the assumed friendly front lines. Locations for the microphone arrays of both squads are selected carefully to insure good acoustical conditions. A base line of 500 to 1000 yards in length should be used.

The weapons used to execute counterfire missions should first be emplaced in defilade, immediately to the rear of the right (or left) of the microphone arrays (immediate method). When these weapons have been located by the sound locating set, the enemy crews mark their locations and withdraw to a place of safety. Fire data is furnished direct to the weapon crews executing the counterfire mission by the sound locating set personnel, and actual counterfire is delivered.

When the immediate method is understood and practiced, the squads are taught the close method. The weapons employed to execute the counterfire missions are surveyed in at appropriate defiladed locations in rear of (or in front of) the base lines. Communication is established from the control team to the fire direction center. Target data is transmitted in the form of range and azimuth from a previously selected weapon.

Concurrently with training in the close method of working with counterfire weapons, the sound locating squads are also given training in the normal method. This instruction

consists of practical work in plotting simulated enemy targets and transmitting the information by map or photograph reference to fire direction centers in the shortest time possible.

A necessary part of this final phase is instruction in methods of squad displacement. The squad leader, who is abreast of the simulated tactical situation, must know when the range from the original location will be excessive. He must notify the platoon leader, who in turn will indicate the location of the new squad position. When possible, the new squad area is surveyed by use of accessory equipment (compass, aiming circle and rangefinder). This surveying permits the sound locating set GR-6A with the remainder of the squad to stay in operation at the old location until the new position is ready. When the survey of the new position is completed, displacement should be accomplished alternately, by packboard, hand carry and vehicle to accustom the squad members to all methods of displacing their equipment. Night and day displacement should be practiced until they can be effected with a minimum of confusion and "out-of-action break" between sound ranging from the old and new positions.

Is the Counterfire Platoon Effective?

To become an effective, efficient part of the Infantry regiment, a counterfire platoon must carry on this training. If this is done, and the platoon is intelligently employed, the unit will be of great service to the commander.

Here is a report from a counterfire platoon leader, now in Korea, concerning the capabilities of his unit:

"One of my squads reported a weapon located 12,000 meters from their position. I had no idea the GR-6A would pick up weapons at such a distance. An air OP was called in to look over the area. He reported not one, but a *battery* of 155's the Chinese were using as Corps artillery. Three of these weapons were ultimately destroyed and one was damaged."

The distance referred to is rather great for a GR-6A pickup inasmuch as sound is not normally heard at 12,000 meters, but this example illustrates what a well trained counterfire platoon can do for *you*.

The grim struggle which occupies the entire world today is simply the latest version of the age-old conflict between freedom and tyranny. In the terms of our times, it is a battle between democracy and totalitarianism.

— Former Secretary of the Army Frank Pace, Jr.

Meet the Authors

Major General Floyd L. Parks, author of "Your Other MOS," enlisted in 1918 and was commissioned shortly afterwards. From 1924 to 1940, he attended the Tank, Infantry and Chemical Warfare Schools and the Command and General Staff College.

In 1940, he joined the 66th Armored Regiment. He was appointed Chief of Staff of Army Ground Forces in 1942 and later became assistant division commander of the 69th Division. In 1945 he became commanding general of the First Airborne Army in Europe. After his return to the United States he was appointed Director of Public Information, Department of the Army.

He later served as commander US Army Pacific but was recalled in 1949 to become Chief Public Information, Department of the Army, his present assignment.

Lt David R. Hughes was graduated from the United States Military Academy in 1950 and was ordered to Korea that fall. While there he commanded Company "K" of the 7th Cavalry and served in several staff assignments. Upon his return to the United States he was assigned to The Infantry School as an instructor in the Tactical Department.

Lt Col Harold J. St. Clair, CE, author of "Part-Time Infantry," was commissioned in 1942. He has had extensive experience both as an Engineer platoon leader and staff officer. He served as S3 of the 206 Engr C Bn, 20th Corps from 1944 to 1945 and tells us "this battalion was committed as Infantry a number of times." He has been an instructor at The Engineer School and is presently the executive officer of the Department of Military Arts at The Engineer School. We hope the appearance of Col St. Clair's article will encourage members of other arms and services to write for the QUARTERLY.

SFC Clarence J. Acreman, Jr., author of "A Sergeant Reports," has had a varied career. He spent World War II in the Navy and in 1945 was on a mine layer in the Pacific. In 1949 he joined the Army and in 1950 went to Korea as a computer in the heavy mortar company of the 15th Infantry Regiment. Shortly afterwards he became assistant to the gunnery officer (Chief Fire Direction Computer). He is now with the Mortar Committee of the Weapons Department, The Infantry School.

Lt Col Emil V. B. Edmond, author of "Will I Go to School?" is no stranger to QUARTERLY readers and is particularly qualified to write about the Infantry officer's career. He is a member of the Infantry Branch of Career Management Division Development of the Army. During World War II he served with the 16th Infantry, First Infantry Division and was later an instructor at The Infantry School.

Major Raymond H. Hitchcock, co-author (with **Major Alexander R. Bolling, Jr.**) of "Bringing the Mountain to Mohammed," is another repeater. His previous article appeared in the July QUARTERLY. During World War II he served with the 2nd Infantry Division and is currently assigned to the Tactical Department, The Infantry School.

Major Alexander R. Bolling, Jr., received his commission in 1943. During World War II he served in Europe. Major Bolling spent 67 days as a prisoner of war but escaped in March of 1945 to finish the war with the 87th Infantry Division. At present he is an instructor in the Tactical Department of The Infantry School.

Lt Gale C. Livengood, author of "The Story of the BAR," is a QUARTERLY repeater and is fast becoming a regular contributor. He served with the 7th Cavalry in Korea and is presently assigned to The Infantry School as an instructor in the Weapons Department.

Major Quinten L. Gates, author of "The New Counterfire Platoon," was commissioned in 1941 and served with the 45th Division in the Mediterranean Theater during World War II. In 1945 he attended the Joint Army-Navy Communications Course at Harvard University. He is currently assigned to the Communications Department of The Infantry School.

Captain Bickford E. Sawyer, Jr., author of "Amtracks," was commissioned in 1945. He served in Korea as a platoon leader and company commander with the 23d Infantry. In 1951-52 he attended the Infantry Officers Class at The Infantry School and after graduation was assigned to the Training Publications Department, The Infantry School.

Captain Alfred Phillips graduated from the Infantry OCS in January 1944. He served as rifle platoon leader and rifle company commander in the 86th Division in both the European and Pacific theaters during 1945 and 1946. Captain Phillips re-entered active duty in March 1950 and is currently assigned to The Infantry School as principal instructor of The School's Combat in Cities Problem.

In the July Issue

✕ **"Marksmanship"** — How you can turn a bolo into an expert. The secret is proper training. Every instructor and anyone who has ever fired a rifle should read this article.

✕ **"Perimeter Defense"** — The battalion was several miles forward of the Korean front lines. A Red attack could come from any direction. Here's how to set up an all-around defense.

✕ **"History of the M-1"** — The story behind the rifle. Here's an account of the development of the Army's shoulder weapons from Valley Forge to Inchon, as well as a glimpse into the future.

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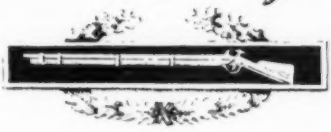
Award — Combat Infantryman Badge

40th INF DIV  KOREA

This is to Certify that SFC Wayne Halvin Stuart

US 56 113 313 Co "C" 224th Infantry *40th Inf Div in Korea*

is awarded the Combat Infantryman Badge for active participation in ground combat against an armed enemy of the United States.

Approved: *Joseph P. Cleland*

JOSEPH P. CLELAND
Major General, USA
COMMANDING

10 October 1952

Hugh P. Harris

HUGH P. HARRIS
Colonel, 224th Infantry Regiment

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Here's a method used by the 40th Infantry Division (now in Korea) to add the personal touch as well as considerable dignity to the presentation of the Combat Infantry Badge.

The 40th Infantry Division finds that this certificate serves three purposes:

1. It can be the basis for a local presentation within the individual's unit.

2. It gives the individual an attractive and official record of his achievement.

3. If it is sent home, it might well be the basis for an accurate local newspaper account of the individual's achievement.

* * *

THE QUARTERLY will be pleased to receive and pass on similar ideas for the benefit of other Infantrymen.

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